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Problems of Economics

ВОПРОСЫ ЭКОНОМИКИ

English Translation of the U.S.S.R. Monthly Journal VOPROSY EKONOMIKI

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Preparing New Amortization Rate Norms for the Basic Funds

Development of Transportation and Communication in the U.S.S.R.

A Textbook on New Branches of Soviet Financial Science

Struggle with Rightists in the Field of Economic Theory in China

Books Dealing with the Economics of Industry, Transport, Construction and Agriculture Published in 1957

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L. Andrienko:

The Struggle for Solving the Problem of Catching up with the USA in Per Capita Production of Meat, Milk and Butter

Relying on the superiority of the socialist economic system, on uninterrupted technical progress and the growth of labor productivity, the Communist Party is organizing a further mighty upsurge of all branches of the national economy, is securing a further increase of the material welfare and a higher cultural level of the laboring masses.

Recently the Ukrainian people, together with all other peoples of our country, joyfully celebrated the glorious jubilee of the 40th anniversary of Soviet power. Under the guidance of the Communist Party it broke the chains of social and national oppression, became full master of its own land and its own fate, built up a socialist system and entered the stage of the gradual transition from socialism to communism.

The most important component of the progress of communist construction in our country is a steady growth of public consumption on the basis of an abundance of food for the population and raw materials for light industry. In the past year the idea arose in the brigades and collective and state farms — an idea supported by the Communist Party of the country — of catching up in the near future with the United States in per capita production of meat, milk and butter. Realization of this task will be a new great step on the road to communism.

The laboring masses of the Ukraine's collective and state farms are successfully developing livestock breeding, steadily increasing the size of the herds and their productivity, struggling for increased output and lower cost of livestock production.

The increase of the productive livestock on all categories of farms was as follows (in thousands):

	1916	1940	1956	1956 as % of 1916
long-horned cattle	9132	10996	15081	165
no. of cows in above	4116	5965	6914	168
hogs	6469	9186	16934	262
sheep and goats	6904	7325	12014	174

Especially rapid was the growth of herds in prewar years on the collective farms. During the period of 1935-1941 the number of long-horned cattle in the collective farms increased by 2.2 million, or 2.7 times; hogs by two million, or 3.4 times; sheep by 2.4 million, or 2.9 times.

The war of 1941-1945 and the occupation of the Ukraine by the fascist troops caused heavy damage to Ukrainian agriculture and especially to its livestock. At the moment of the republic's liberation only 6% of the long-horned cattle, 3% of the sheep and 2% of the hogs of the republic's collective farms remained.

Through heroic, self-sacrificing labor of the collective farm members and MTS and state farm workers in the postwar period in an unprecedentedly short time the prewar level of agricultural development was not only reached but even left far behind. The number of livestock (including poultry) on the Ukrainian collective and state farms has increased very rapidly, as may be seen from the following table (in thousands):

	1940	1946	1957	1957 as % of 1940
long-horned cattle	4033	2654	8975	222
no. of cows in above	1029	322	3188	310
hogs	3745	674	9400	251
sheep & goats	4325	1425	9291	215
productive poultry	9337	2400	21280	228

In fact in the postwar years livestock breeding was created anew on the collective and state farms. By 1956 the number of cows had increased by 2.7 million as compared with 1946. By October, 1956, the percent of livestock on the collective and state farms as compared with the total number of livestock in the Ukraine amounted to 55% for long-horned cattle, 65% hogs, 87.8% sheep. Thus livestock breeding predominates in the socialist sector.

There are now in the Ukraine 14,638 collective farms and 1,093 state farms and subsidiary farms. They all are large farms with many branches of agriculture and, on the basis of zonal specialization, they correctly combine the leading branches of agriculture and livestock breeding. The average size of these farms and the livestock they have may be seen from the table on the following page (data as of December 1, 1957).

On the collective and state farm fields of the republic are more than 237,000 tractors (in terms of 15 hp.), 75,000 combines, and hundreds of thousands of other agricultural machines. Almost all state farms, all MTS and one-third of the collective farms are supplied with electricity.

The Ukraine now has all that is necessary for a further powerful development of all branches of agriculture: its collective and state farms are armed with first-class machinery, have a substantial power base, sufficient productive livestock, and trained cadres of personnel capable of leading the struggle for a further great upsurge in agriculture.

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*L. Andrienko is chief of the Agricultural Department, Central Committee of the Ukrainian Communist Party.

	collective farms	state farms of the Ukrainian Ministry of Agriculture
all land at farms' disposal (ha.)	2757	7689
plowed land in above	1883	5609
long-horned cattle (no.)	534	1469
cows in above	186	494
hogs (no.)	550	3083
sheep	541	2237
horses	127	23
poultry	1475	6397

As is known, the Ukraine is one of the largest granaries of the Soviet Union. In the current five-year plan, beside grain and technical crops, it will produce 23% of the milk, 25% of the meat (including pork, of which it will supply 30%) of the total output of the Soviet Union.

Struggling for a sharp increase of agricultural production, especially of livestock products, the Communist Party of the Ukraine carried out extensive organizational work among the workers on collective farms, MTS and state farms, and this brought positive results — an upsurge in agriculture and especially livestock breeding. In the last four years the number of livestock in the republic and especially on the collective and state farms has greatly increased, as may be seen from the following table:

	number of cattle (thousands)		increase	
	1/1/53	1/1/58	thou.	%
on all farms:				
long-horned cattle	11193	15114	3131	26
cows in above	5141	7196	2055	40
hogs	9180	13964	4784	52
sheep	7569	10418	2849	38
on collective & state farms:				
long-horned cattle	7191	8930	1739	24
cows in above	1789	3178	1389	78
hogs	6305	9298	2993	47
sheep	6675	9272	2597	39

In 1957 there were per 100 ha. of farmland in the republic 34 head of long-horned cattle (of which 15.8 were cows), 47.4 hogs, and 27 sheep. The number of cows on the collective farms per 100 ha. of farmland increased from five in 1953 to eight in 1957. At the same time productivity of livestock was increasing. For example, the average yield of milk per cow on the collective farms increased during the same period from 1,188 kg. to 2,107 kg.

On the basis of the growth of the number of livestock and the increase of its productivity output of livestock products increased, as may be seen from the following table of production of meat and milk in the Ukrainian SSR.

The increase in livestock products output was helped by the creation of a reliable feed base and by widespread construction of buildings for livestock throughout the republic. During 1954-1957 the collective farms alone completed buildings for 2.4 million long-horned cattle, for 4.4 million hogs and 3.6 million sheep. Extensive work on mechanization of livestock-breeding farms was also carried out.

	meat (on hoof)		milk	
	total (thou.)	per 100 ha. (in centner)	total (thou.)	per 100 ha. (cent.)
on all farms:				
1953	2132	49	7731	177
1957	2873	65.4	13006	298.4
growth (%)	35	-	68	-
on collective & state farms:				
1953	851	21	2447	60.3
1957	1193	30	6385	159
growth (%)	40	-	161	-

During 1953 to 1956 the incomes of collective farmers increased considerably, as well as payment per labor day. Income from livestock breeding alone increased by 88.5%.

Considering the production level reached and the prospects for further growth, the workers of Ukrainian agriculture set the task for themselves of struggling stubbornly to overtake in the near future the United States' indices in the field of livestock production. In the production of milk and butter per capita we have all the possibilities to overtake the United States this year. The toilers of agriculture in ou republic took a pledge to bring the production of milk to not less than 400 centners and of meat to not less than 100 centners per 100 ha. of agricultural land by 1960.

In 1957 the agriculture of the republic has greatly increased production of meat and milk as compared with 195 This may be seen from the following data on the increase i production of meat and milk on the collective and state farm in the Ukraine in 1957:

	total in collective and state farms	of which	
		in col. farms	in state farms
meat production:			
per 100 ha. of agricultural land			
in centners	30	28	38
% of 1956	130	122	165
part of pork prod. per 100 ha. of agricultural land			
in centners	17	15	29
% of 1956	141	132	240
not fattened & delivered for meat			
long-horned cattle	1838	1656	118
hogs	6388	5105	1039
milk production:			
per 100 ha. of agricultural land			
in centners	159	159	140
% of 1956	116	117	143
milk yield per cow (in kg.)	2154	2107	2481

Production of eggs on collective and state farms increased during the year 1.3 times and wool 1.2 times.

Many collective and state farms successfully fulfilled the obligation in respect to production and deliveries of meat, milk, wool and eggs for the 40th anniversary of Great October. Hundreds of collective and state farms already in 1957 produced from 70 to 100 centners of meat and from 300 to 400 centners (and even more) of milk per 100 ha. of agricultural land. For example, collective farms of Vinnitsa and Kryzhopolsky districts, Vinnitsa region, obtained in 1957 103 centners of meat and more than 300 centners of milk per 100 ha. of agricultural land. On the collective farms of Kievo-Svyatoshinsk district, Kiev region, 374 centners of milk were obtained; on the collective farms of Kharkov district, Kharkov region, 346 centners; and in Zastavnov district, Chernovtsy region, 349 centners per 100 ha. of agricultural land. Many collective and state farms have obtained indices in their production of meat and milk exceeding those of obligations taken by the toilers of the republic's agriculture for 1960.

A substantial increase in the production of livestock products made it possible to fulfill the plan of deliveries and sales ahead of time and greatly improve the food supply of the population. Last year we delivered and sold to the state 1,200,000 million tons of meat (289,000 tons more than in 1956), 4,700,000 tons of milk (419,000 tons more than in 1956), 1,283 million eggs (355 million more than in 1956) and 250,000 centners of wool (40,000 centners more than in 1956).

***

How were these results achieved; how was the work of carrying out this task set by the state of a sharp upsurge of livestock breeding realized?

In conformity with the September (1953) and January (1955) decisions of the plenum of the Party Central Committee and the 20th Congress of the CPSU, the guidance of the development of livestock breeding was improved. We considerably strengthened organizational work on the collective and state farms and MTS. A large number of Communists, Young Communist League members and leading collective farmers were sent to work on the farms. At present twice as many Communists are occupied in livestock breeding as in 1954. In 1957 alone 44,000 YCL members and young people were sent to the farms, of which 7,000 are graduates of secondary schools. Altogether there are now occupied in livestock breeding more than 170,000 young collective farmers. On the farms there have been organized more than 2,500 brigades consisting of members of the YCL and young people. The main condition for the advance of all branches of agriculture and especially of livestock breeding is an increase in grain production. The 20th Congress of the CP set before the republic the task of bringing the gross harvest of grain in 1960 to no less than 2.1 billion poods. To realize this task throughout the republic extensive work is being done to improve the state of agriculture, raise the yields of grain, expand the area under corn and combat losses. All this has made it possible to improve greatly the feed base for livestock breeding.

Basically success in this field was ensured by corn. The area under corn in the republic now exceeds five million ha. Many collective farms and whole districts have yields of 30 to 40 centners of corn per ha., and hundreds of the best "links" from 80 to 100 centners and more. A. Yeremenko's link Karl Marx collective farm, Skalatsk district, Ternopol region, obtained a yield of 162 centners in 1957. On the Communist collective farm, Teremnovsk district, Volhynia region, the yield was 47 centners per ha. Corn, as well as grain, gives high yields of corn green. On Peremoga collective farm, Glinyansk district, Lvov region, the yield of corn green in 1957 reached 680 centners per ha., and on the collective farms of Zolochevsk district, Lvov region, 520 centners. It was corn which made it possible, beginning with 1955, for the first time in the postwar years to supply livestock with succulent and concentrated feeds. This can be seen from the following table of silage production on the collective farms of the Ukrainian Republic (in thousand tons):

	1953	1954	1955	1956	1957
total silage	7248	8940	14845	21478	23910
part of corn silage	-	-	8516	15056	16036
per cow (tons)	4.4	4.2	6.2	8.2	8.8

The collective farms of Vinnitsa, Volhynia, Chernovtsy and Voroshilovgrad regions in 1957 produced from ten to 12 tons of silage per cow.

In order to produce this amount of silage on the collective and state farms much work was done in silo construction. In 1955-56 there were built faced pits and trenches for more than 16 million tons of silage, or six times as much as in all prewar years. In 1957 a new method, that of horizontal silos constructed above ground, found wide use. By this method about 2.5 million tons of feed were ensiled, mainly sugar-beet tops and crowns. This method of ensiling is 20% to 25% cheaper than digging pits or circular structures and, moreover, it guarantees good preservation of feed.

Most livestock breeding products of collective and state farms are obtained in the summer months. In view of this it is very important to supply livestock during this period with sufficient green feeds.

The main source of such feeds, in view of the small area of natural pastures in the republic, is plant growing. For green feeds we sow winter rye and wheat and annual and perennial grasses. The basic crop of the "green conveyer" in the last years has become corn. Corn for green feed is sown several times, so that the livestock have green feeds from spring to autumn. In order to increase the harvest of feeds in the republic the methods of sowing of various plants (1) after mowing, (2) after harvesting and (3) densified sowing (simultaneous sowing of two plants on the same area, usually with different periods of maturing) are gaining wide use. In 1957 about 500,000 ha. were sown in this way, or ten times as much as in 1956. On the collective farms of Volhynia region the area of post-harvest and densified sowing exceeded 23,000 ha. This made possible getting more than 100,000 tons of additional succulent feed, or 1.5 tons per cow. In Kiev region such sowings covered an area of 32,000 ha., which brought more than 150,000 tons of additional feed; in Vinnitsa region 23,000 ha. brought 160,000 tons of additional feed; in Chernigov region 19,000 ha. brought 100,000 tons of additional feed.

An important source of increasing production of feeds is the improvement of natural feed grounds — meadows and pastures. The experience of a number of collective farms shows that surface improvement of these lands, applying fertilizers, and additional sowing of high-yielding grasses increase their productivity from two to three times. Many farms have already begun carrying out complex work on improving meadows and pastures. For example, in Volhynia region in 1957 surface improvement of meadows and pastures was carried out on an area of more than 74,000 ha., i.e. on almost one-third of all such lands. During the current five-year plan it is planned to carry out surface improvement of all natural meadows and pastures.

It is worthwhile to note here the question of production of feeds rich in albumin. As a result of increasing the area under corn the feed base of the collective and state farms of the Ukraine was considerably strengthened. However, the feeds prepared in 1956 contained only from 55 to 60 grams of albumin per feed unit. This is only half of what is needed. Feeds with this albumin content would ensure a milk yield per cow of only 1.5 to 2 tons, or raise from 12 to 15 centners the number of hogs per 100 ha. of sown area. Deficiency of albumin in feeds is holding off further growth of livestock productivity. In view of this for a further increase of production of all kinds of livestock products and lowering their cost it is necessary to bring the albumin content per feed unit to the level of from 90 to 100 grams. With this purpose in view the Ukrainian Republic Ministry of Agriculture recommended that the collective and state farms expand the area under annual and perennial grasses of the bean family, as well as grain-bean combinations where they bring good yields (specifically, lupin in the Polesye; vetches and peas in the forest-steppe; soybeans and peas in the south, etc.). Production of grain-bean crops is recommended to provide up to 20% of the balance of feed grains. It is also planned to prepare flour from hay and to harvest annual and perennial grasses in time, so that the albumin will be preserved to the greatest possible degree. At the same time the use of wastes from meat combines and slaughterhouses as well as fish enterprises and dairies as feeds for cattle is being organized.

The question of increasing production of all kinds of feeds will remain in the center of attention of the Ukraine's agricultural workers. Calculations show that for the production of 400 centners of milk and 100 centners of meat per 100 ha., as well as for achieving the goals in production of eggs and wool, it is necessary to obtain a minimum of 17 to 18 centners of feed units per ha. At present the amount of feed produced is lower than this. Consequently, the task now is further to improve the culture of husbandry and increase the gross harvest of all agricultural products.

Great attention is given in the republic to the planning of collective farm output. The practice of the collective and state farms' work in the last years shows that an increase in the production of milk and meat to a large degree depends upon proper long-range and current planning of milk yields, of fattening of cattle, and upon constant control over the execution of approved plans. For this purpose every year all collective and state farms prepare monthly and quarterly plan-charts for the production of milk, for fattening hogs and long-horned cattle and taking them off, as well as for deliveries of milk and meat to the state. On the basis of monthly plans the collective farms prepare ten-year targets of milk production for each branch farm. On most farms milkmaids receive their targets for milk production each day. At the same time collective farms, with the help of MTS specialists, at the beginning of the year outline concrete measures which would ensure that the approved production plan will be carried out. Such planning makes it possible to control the progress of production, deliveries and sale of products to the state more effectively. In spite of the fact that the practice of current planning is new and is being applied for the first time, the monthly plans for production of livestock products prepared at the beginning of last year were fulfilled satisfactorily as a result of ever day organizational work.

Raising the level of organizational work, better application of the new method of planning, strengthening the feed base — these were the main factors in the upsurge of livestock production in the Ukrainian Republic. At the same time the collective and state farms and research institutio of the republic carried out many important technical measures directed toward increasing livestock products. Let us consider some of them.

As is known, one of the biggest and most complex problems is increasing meat production.

In the Ukraine increased meat production is obtained mainly through the development of hog breeding, because hogs mature more rapidly than long-horned cattle or sheep. From 1950 to 1955 production of pork on the collective farm increased by 83,000 tons; but in the last two years it increased by 250,000 tons. In 1957 collective and state farm of the republic took more than six million hogs off fattening — three times as many as in 1955. Now more than thre million hogs are being fattened. For such a growth of hog production it was necessary to increase greatly the total number of hogs. For this purpose, beginning with 1956, the collective and state farms began to concentrate on swine bringing only one litter, and received from them two milli more suckling pigs. In 1957 this use of swine was organize on even a large scale.

The use of swine for production of one litter makes it possible not only to increase the number of hogs, but also to reduce the cost of pork. The cost of a weanling pig obtained from a swine is 30% less than the cost of a weanling pig obtained from a sow. The economic advantage of using swine for producing one litter (before fattening for slaught is supported by other calculations. For example, if 100 sw which should go to fattening are mated when they are nine months old and bear sucklings and after weaning are fatten and delivered for pork, then during the 18 months of maintenance of these swine the following products will be obtained: 190 centners of lard pork (190 kg x 100) and 240 centners of weanling pigs five months old (40 kg x 600), or a total of 430 centners. If these swine were not mated but fattened up, at the age of nine months their weight would amount to 100 centners. This means that in 18 months the farm may produce another such crop of swine and obtain f them (in live weight) 100 centners, or a total of 200 centners — less than half the pork produced by the first metho One should also not forget the fact that weanlings from sw are raised and fattened in summer on cheap green feed, th litter, as a rule, coming in the spring.

Spacing the litters is widespread in the republic. Swine litters come twice a year during a short period which is determined on each farm after consideration of its climati and economic conditions. On many collective farms the fi litter is planned for January or February and the second for July or August. Such spacing makes possible fattening large herds of pigs simultaneously, and this reduces the expenditure of labor and makes the work of the swineherd easier and simpler, because the whole herd gets the same rations, the same feeds.

It is quite clear that a sharp increase in the number of hogs and considerably better feeding of them were impos-

ible in the old quarters. It was necessary to build many
nore piggeries. In view of this the leading collective and
tate farms started substantial construction of light-duty
uarters, partly sheltered feeding platforms. Construction
f such quarters cost much less than heavy-duty piggeries:
piggery for fattening 200 hogs cost from 140 to 150 thou-
and rubles, while the light-duty quarters of the partly-
heltered type for the same number of hogs cost only from
0 to 40 thousand rubles. During 1956 6,000 light-duty quar-
ers were built in the republic, which made it possible to
ave 700 million rubles and considerably reduce the cost
f pork per centner.

Since 1955 the farms of the republic began stall-less
roup maintenance of hogs with self-feeders. In stall feed-
ng one hog-tender, as a rule, serves from 50 to 500 hogs.
his group method makes it possible not only to reduce the
umber of workers and the expenditure on wages four to
ive times, but also to increase the useful area of the pig-
ery. For example, on Lenin's Path collective farm, Vin-
itsa region, using stall-feeding the production of one cent-
ier of pork cost 750 to 800 rubles. Under the new method
he upkeep of 150 to 200 hogs in a group in a light-duty
uarters was reduced to 450 rubles per centner.

A large savings is also achieved by feeding the hogs po-
atoes in the field, because in this way the expenses of har-
esting and kagatirovanye of potatoes for hogs are saved.
n 1957 the collective and state farms of the republic as an
xperiment carried on large-scale "grazing" of hogs on
arge areas of potato fields.

Of great practical importance for increasing production
f pork is crossbreeding of hogs on a large scale. Accord-
ng to experiments of the Poltava Research Institute in pig
reeding, crossbreeding of large white pigs with Mirgorod
igs brings 15% more pork than obtained from large white
igs, and yet the crossbred pigs require less feed per kg.
veight increase. Crossbreeding on a mass scale is now
pplied on 9,000 collective farms and on the majority of
tate farms.

Realization of these and other measures enabled many
ollective and state farms to reduce considerably the ex-
enditure of labor and means per centner of pork. For ex-
mple, in 1956 the collective farms of Vinnitsa, Chernovtsy
nd Dnepropetrovsk regions reduced the expenditure of la-
or per centner of pork (in labor-days) by 23% to 25%.

A large part of the republic's meat production is beef.
Iowever, in 1957 many farms did not pay proper attention
o the organization of beef production. On a number of col-
ective farms a decrease in beef-cattle was permitted —
xen and castrated bullocks — and frequently unfattened
attle and young stock was delivered, and this brought loss-
s to the collective farms and to the state. Now these short-
omings are being removed. In each collective or state
arm the cattle which are too young or are set aside for
attening or weight gain are separated from other groups.
pecial collective farm members or workers are appointed
o take care of them and are given targets for weight in-
rease. In order to have in the future a sufficient number
f long-horned cattle to set aside for gaining weight or fat-
ening, collective and state farms in 1957 contracted and
urchased from the collective farmers, workers, and office
vorkers 1,300,000 young stock.

The experience of a number of districts and regions in
rganization of inter-kolkhoz feeding centers at sugar mills
nd distilleries also deserves our attention. Utilization of
he waste products — distillery mash and bagasse of the
ugar mills — for feeding at the plant results in a sharp reduction of transportation expenditures. In Poltava region 14 such inter-kolkhoz centers have been created, where about 4,000 head of long-horned cattle are being fattened. In Khmelnitsky region in September, 1957, 11 centers for 4,000 head of cattle began functioning. Already the first results of the work of such centers prove the practicability of this measure.

The results of the measures taken for the increase in production of beef have not yet produced their full effect, but they are already perceptible. The average weight of long-horned cattle on the hoof delivered to the state in 1957 by the collective farms of Chernigov, Vinnitsa, Poltava and other regions increased by 80 to 90 kg, while the average for the republic increased by 40 kg. If we take into consideration the fact that the collective farms of the republic delivered more than 1,500,000 head of long-horned cattle for beef, it means that through an increase in live-weight alone they delivered an additional 60,000 tons of beef. The live-weight of hogs and sheep delivered for meat also increased. The quality of the cattle delivered for meat has improved too.

An important source of increasing production of meat is poultry. This may be seen from the example of Stalino region. The collective farms of the Maritime district of that region obtained 23 centners and of Staro-Mlinovo district 17 centners per 100 ha. under grains. The 20th Party Congress collective farm, Maritime district, raised 70,000 ducks and produced 83 centners of fowl per 100 ha. under grains.

Following the example of the collective farms in Stalino region, many collective and state farms of the republic began in 1957 to raise ducks in limans (estuaries and shallow salt lakes near the sea), lakes and ponds. In 1957 the collective and state farms of Odessa region raised 2,200,000 ducks. In the Belyayev district of that region in the Dnestr limans the collective farms raised 178,000 ducks and geese, that is, 13 centners per 100 ha. under grains. Friendship of Peoples collective farm raised 50,000 ducks, or 25 centners per 100 ha. under grains. In 1957 the collective and state farms of the republic raised about 11,000,000 ducks, or almost 2.3 times as many as in 1956.

One of the additional sources of increasing meat production is rabbit breeding. Lately a number of measures were taken to encourage this branch of livestock breeding. Now more than 6,000 collective farms have special rabbit farms. In 1956 Cherkassy region delivered 1,200 tons of rabbit (an equivalent of 6,000 head of long-horned cattle in slaughtered weight).

Even better results were achieved recently in milk production and delivery. Enough to say that in 1956 alone the increase in milk production amounted to its increase during the whole preceding five-year plan. Milk yields per cow have greatly increased. Between 1945 and 1955 the yield of milk per cow increased by 393 kg; in the last two years the increase amounted to 544 kg. Many regions obtained even better results. For example, in Kiev region the average increase in milk yield per cow in 1957 alone was more than 700 kg. While in 1955 an average yield of more than 2,000 kg. per cow was achieved only on Chernovtsy region collective farms, in 1957 this level was achieved on all collective farms of the republic. Many foreward-looking milkmaids achieved outstanding successes in this field, among them Hero of Socialist Labor M. K. Savchenko, who obtained the following average milk yields for the cows assigned to her: in 1955 7,216 kg.; in 1956 8,041; in 1957 8,271 kg. A. P. Ostrovskaya, of 17th Party Congress Collective farm, Vinnitsa region, obtained an average of 7,649 kg. in 1957. E.A. Demidenko, of Kolos collective farm, Pereyaslav-Khmelnitsky district, Kiev region, obtained an average yield from each cow assigned her of more than 6,000 kg. of milk in the last seven years and in 1957 obtained 8,738 kg. An increase in production of milk on collective and state farms of the republic is achieved mainly through the wider use of stall feeding at the cows' summer bases, with application of "green conveyer." Keeping the cattle in winter quarters during the summer has a number of serious drawbacks: the animals have long walks from the cattle shed to the pastures, they spend less time in the fresh air; and the cleaning, disinfecting and repair of the winter quarters is hampered because they are occupied by the cattle. The experience of the better farms shows that the maintenance of the animals in camps, if they are ensured green feeds, creates the best zoohygienic conditions. The fresh air, sufficient walks to pastures and in their specially assigned plots, and abundant green feeds from the troughs create the best conditions for increasing the productivity of livestock, the fertility of productive cows and the development of the young stock.

The "green conveyer" method which has been used on the leading collective farm of the republic, Zdobutok Zhovtnya, Talnov district, Cherkassy region, has special interest:

	hectare area	time of sowing	yield in centners per ha.
winter wheat	5	from past years	200
winter rye	5	"	200
alfalfa	10	"	150
clover	20	"	150
sunflowers	4	April 22	300
vetches oats,			
first sowing	10	April 20	150
second sowing	8	May 2	150
corn - peas	5	May 2	200
corn - sudanka			
first sowing	5	May 4	200
second sowing	5	May 14	250
third sowing	5	May 24	280
fourth sowing	5	June 4	200
fifth sowing	10	June 14	150
after-grass of perennial grasses	20	from past years	75
pumpkins	10	May 10	300
sugar beet tops and crowns	100	May 20	60

This "green conveyer" plan, which has a high percentage of corn in it, is of special interest to the farms of the forest-steppe zone. In 1957 Zdobutok Zhovtnya collective farm obtained an average of 3,989 kg. of milk per cow and 616.8 centners of milk per 100 ha. of agricultural land.

An increase in milk production in the republic was achieved not only through increase in yields of milk per cow but also through a growth of cow herds. In 1953 there were 4.7 cows per 100 ha. of land in the collective and state farms; now there are 7.8. Taking as their point of departure the task set by the appeal of the CC, CPSU, and of the Council of Ministers of the USSR, the livestock breeders of the republic, while increasing yields of milk per cow, at the same time try to increase considerably the number of cows so as to have in a number of regions from 20 to 25 cows, and even more, per 100 ha. of agricultural land in the next three to four years. They took into consideration that the growth of the number of cows would also contribute toward the solution of the meat problem, because there will be more young stock, more bullocks will be fattened up and this will increase our supply of beef. For this purpose the collective and state farms allotted a necessary number of heifers for the maintenance and increase of herds through their own reproduction.

In order to lower expenditure of labor and means of production many collective farms and state farms are milking cows twice a day. Great economy is obtained by applicatio of milking platforms. One milkmaid using milking apparatuses may milk six to eight cows simultaneously. This reduces the need for milkmaids and makes their work easier

Some successes have been achieved in the development of sheep breeding. The number of sheep in the Ukraine has exceeded the prewar figure by 3.7 million. The wool clip in 1957 increased, as compared with 1956, by 17%. Stalin collective farm, Genichesk district, Kherson region, in 195 clipped an average of 5.6 kg. of wool per sheep, while in some flocks the average was from 6.2 kg. to 6.5 kg. I. S. Samoilov, senior shepherd of Kalinin collective farm, Tsyurupinsk district, Kherson region, clipped an average 7.7 kg. of wool from a flock of 900 sheep.

At present measures are being taken in our republic ensuring more rapid development of sheep breeding. Measures for qualitative improvement of the sheep flock were worked out and are now being realized. State farms raisin purebred Askania sheep have been organized in Nikolayev and Zhaporozhye regions as well as at Privolnyansky state breeding station. Many collective and state farms are now using winter and early-spring lambing because this results in a larger number of surviving lambs and and increases production of mutton and wool. Winter grazing also contributes toward increasing the wool clip.

Sheepbreeding is most successfully developed in the sou of the republic, where the farms of the Ukrainian research institute of livestock breeding produced the new highly-productive Askania breed of sheep, well adjusted to the local conditions of the southern Ukraine. The number of sheep o this breed on the collective and state farms of Kherson, Zaporozhye, Nikolayev and other regions exceeds 1,600,000 In crossbreeding of coarse wool ewes with Askania rams 62% of the second generation yield fine wool. On the basis of these experiments it is planned in the near future to transform all the republic's sheepbreeding into fine and semi-fine wool producing flocks. All these measures will make possible considerably increasing production of valuable raw material for our light industry.

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Further development of branches of the Ukraine's agriculture will require special attention to their geographic distribution, taking into consideration zonal peculiarities, existing specialization, and proper combination of plant breeding and livestock breeding.

In the republic there are the following agricultural zone steppe, forest-steppe, Polesye, Mountainous-Carpathian. Inside these zones (except the Mountainous-Carpathian) in the districts situated near large industrial centers (such a Kiev, Kharkov, Dnepropetrovsk, Zaporozhye, Odessa, Nikolayev and Lvov) vegetable production and dairy farming predominate.

This historical specialization of individual agricultural zones of the Ukraine was taken as a basis for the geograph distribution of agricultural production for 1956-1960 by zones, though with some modifications. The problem of fu ther increasing the number of livestock is solved first of all through taking into consideration zonal conditions, prospects for increasing this or that livestock product and increasing the intensity of agriculture. As a result of this approach the actual geographic distribution of various branches of collective livestock breeding on the collective farms in terms of the number of livestock per 100 ha. of agricultural land in 1957 was as follows:

	long-horned cattle	of this, cows	hogs per 100 ha. plowed land	sheep and goats	poultry per 100 ha. of land under grain
Steppe zone	21.0	7.4	24.9	29.6	171.0
forest-steppe	23.4	8.3	31.8	17.7	136.0
Polesye	23.0	7.5	32.8	16.3	107.0
Mountainous-Carpathian	21.4	7.8	30.2	24.0	123.0
Average for the Ukraine	22.3	7.8	29.0	22.6	144.0

Thus in the steppe zone, where there are fewer hogs than the average for the republic and especially as compared with the forest-steppe zone and Polesye zones, there are more sheep. In that zone is concentrated basic production of fine wool, while production of hogs is concentrated in the forest-steppe region and in the Polesye. In the steppe region the number of poultry is higher: here it is successfully combined with grain production, the main field crop in this zone.

At present on many collective farms of the republic production of livestock products has reached or is approaching a level when further increase in productivity of cows and sheep will depend directly upon the increase in the number of purebred stock. This brings to the forefront the question of developing a general system of measures for improving breeds of livestock. The questions of improving breeding qualities of the productive livestock in the Ukrainian SSR occupies the attention of 44 state breeding stations, 66 state farms of purebred livestock, 13 stud farms, 78 experimental stations at research institutes, and 580 incubator-poultry-raising stations. Special attention is given to the wide application of artificial insemination of livestock, which makes it possible in a short time to replace livestock of small productivity with that of high productivity.

In connection with the great increase in the number of productive cows and ewes at the farms and the necessity of wide application of artificial insemination of the livestock, in 1955 a new form of its organization was created, namely, establishment of state and kolkhoz stations and centers for artificial insemination of livestock. In 1957 in the republic 164 state stations and 5,800 insemination centers were functioning. During that year in the Ukrainian SSR 27% of all cows and more than 40% of the ewes were artificially inseminated, while in Poltava and Kiev regions the corresponding figure for cows was 58 and in Kherson region 96% of the ewes. Interkolkhoz stations for artificial insemination were established at seven regional veterinary hospitals in the Poltava region. The best bulls and rams in the region are kept at the stations, which are paying their way. Veterinary servicing is the duty of specialists of the MTS and districts. This form of organization of artificial insemination has justified itself; it greatly improved the use of bulls and rams and should result in the next two to three years in improvement of cattle quality. It is enough to say that at just the Kiev Terezino Experimental Station for livestock breeding during eleven months of 1955 the semen of "Elite record" and "Elite" class bulls artificially inseminated about 35,000 cows. On the average one bull inseminated 1,195 cows. The bull "Belyak," out of the cow "Kukla" (whose milk yield was 10,955 kg. a year; fat content 4.87%), artificially inseminated 4,655 cows. The December (1957) plenum of the CC of the CP of the Ukraine set the task: to inseminate artificially in 1958 no less than 50% of the cows and ewes. It is planned to organize 159 additional stations of artificial insemination in 1958.

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Collective and state farms obtained significant successes in increasing production of livestock products. Yet the cost per unit still remains high.

How great are the possibilities for reducing costs may be seen from the following example. Khrushchev collective farm, Gorodok district, Khmelnitsky region, had an excellent harvest of crops in 1957 and produced 408 centners of milk and 113 centners of milk per 100 ha., and yet its expenditure of labor per unit of output was from two to five times less than the average for the whole region. For example, it spent 2.7 labor-days per centner of milk, while the average for the region was 7.2 labor-days. Its expenditure of labor-days per centner of pork was eight, while the average for the region was 51.3 labor-days. The cost of production of one centner of pork on the state farms of Kharkov region in 1956 amounted to 731 rubles, of milk 104 rubles. The corresponding figures for Kigichevka state farm in the same region were 491 and 82. If only the state farms of that region would bring costs of one centner of pork and milk to the level of Kigichevka, this would result in savings of not less than 70 million rubles a year.

It is known that further growth of the material welfare of the people to a considerable degree depends upon lowering the cost of agricultural products, because here lies a real possibility of further lowering prices. Reducing labor expenditure, said Comrade N. S. Khrushchev in his report to the Jubilee Session of the Supreme Soviet of the USSR, per unit of product at the present stage of communist construction is of greatest importance. It is time to evaluate the work of the collective and state farms and MTS not only in terms of the quantities of products but also in terms of their cost.

Carrying out measures for further increasing production of livestock products, the toilers of the collective and state farms of the Ukraine are striving to lower the expenditure of labor and means per unit of output and to increase the profitability of the farms. They strive for a multiplication of the successes in the development of collective livestock breeding, further strengthening of the economic power of our motherland, for contributing their part in the nation-wide struggle for the solution of the problem of catching up with the United States in per capita production of meat, milk and butter in the next few years.

M. Brenner:

Problems of Petroleum in the Perspective of Development of the USSR Economy

With the development of the socialist economy petroleum acquires greater and greater importance. In 1957 the output of crude petroleum in the USSR amounted to 98.3 million tons, or more than ten times as much as in 1913 and more than three times as much as in 1940. The petroleum industry was developed at a very rapid tempo during the fifth and especially during the first years of the sixth five-year plans. This tempo may be seen best of all from the average annual increase of the output of crude petroleum: during 1946-1950 it amounted to 3.7 million tons, in 1951-1955 to 6.5 million tons; in 1956-1957 to 13.5 million tons. Now by the size of absolute increase the USSR output of crude petroleum occupies one of the first places in the world and in its tempos of annual increase of petroleum production it is considerably ahead of capitalist countries with well-developed petroleum industries.

Annual Increase of Petroleum Output (% of 1953)

years	USSR	USA
1954	112.3	98.2
1955	134.0	104.4
1956	158.9	110.4
1957	186.1	110.2

In 1957 the output of crude petroleum in the USSR exceeded the 1953 output by 45.5 million tons, while in the United States the output for that year exceeded the 1953 output by 34.3 million tons. However, until recently, the rates of increase of output in the USSR were insufficient, especially if we consider that petroleum has great economic advantages over other kinds of mineral fuel.

Capital investments in the development of an oil field are considerably smaller than the coresponding investments in the development of coal deposits of a similar capacity. This is due to the smaller volume of capital construction and the possibility of more rapid start of operations and full exploitation of an oil field as compared with a coal basin. Relatively high effectiveness of capital investments in the petroleum-producing industry will increase even more in connection with intensive exploitation of highly productive oil fields in the Volga-Ural area of the USSR, the exploitation of which brings a tremendous economy of social labor.

The cost of one ton of crude petroleum (considering their calorific value) on the average amounts to only one-third of the cost of coal. In the future this important economic advantage of crude petroleum over coal will increase steadily, because the cost of one ton of crude petroleum in the Volga-Ural area is equal to one-third (or even less) of the average cost of crude petroleum in the whole country, and the part of these areas in the petroleum output of the USSR is constantly increasing. The advantages of petroleum as compared with coal lie in the smaller expenditure of labor for exploitation and in conditions of work. Labor productivity in crude-petroleum production (in terms of theoretical fuel) is four times as high as coal production.

The great economic advantages of petroleum as compared with other kinds of mineral fuel ensured an intensive develo ment of petroleum production in many countries. In the last 20 years the world output of petroleum increased more than by 600 million tons — almost three times. In 1957 the world output of petroleum amounted to 880.9 million tons. Production in the main oil-producing countries was as follows:

countries	millions of tons	% of world petroleum output
USA	352.0	40.0
Venezuela	146.3	16.6
USSR	98.3	11.2
Kuwait	57.0	6.3
Saudi Arabia	49.0	5.5
Iraq	21.0	2.4
Iran	35.5	4.0
Canada	24.5	2.8

During 1937-1957 the output of petroleum in the USA increased by 174 million tons, which means that petroleum's part in the balance of mineral fuels of that country is very high.

In the last 20 years in the USSR the development of the most economical kinds of fuel — crude petroleum and natural gas — lagged behind fuel consumption. This means that the demand of the national economy for fuel was met through greater expenditure of social labor. Thus the part of coal in the output of mineral fuels in the USSR amounted to 60% in 1937 and rose to 70% in 1955, while the part of petroleum and natural gas during the same period fell from 27% to 25%.

A comparison of the composition of the fuel output in the USSR and in the USA in 1955 shows the following (percentage of the total output in each country):

	USSR	USA
coal	70	33
oil	22	39
gas	2	28
peat	6	-

The most important cause of this disparity in the rates of development of the fuel industry's branches in the prewar years was the tight situation in surveyed petroleum reserves, especially in highly productive oil fields. This limited possibilitie for developing the petroleum industry and lowered its tempo.

It is known that in 1938-1940 the annual output of petroleum in the USSR remained at a level of about 31 million tons. The discovery in the postwar period of rich oil fields in Bashkiria, Tataria, the lower Volga and other regions made possible intensive accumulation of petroleum reserves and created in the USSR a large base of known oil fields which guarantees a planned increase of petroleum production in the country. During 1951-1957 the output of petroleum in the USSR increased by 60 million tons, or 2.5 times, and in the last three years (1955-1957) by almost forty million tons.

The 20th Congress of the CPSU pointed out the necessity to insure high tempos of growth of petroleum output and refining, to increase production of lighter and volatile substances and of lubricants. It set the task to increase about twice the output of petroleum during the sixth five-year plan. This will bring the part of petroleum in the balance of mineral fuels to 30%. The solution of this problem would make it possible considerably to increase the productivity of social labor in the fuel industry and in the national economy as a whole, to insure more effective utilization of capital investments in the national economy, as well as lower the cost of industrial products, first of all in the branches which are the main consumers of fuel.

The problem of high tempos of petroleum and gas output in the USSR acquires special urgency at the present stage of development of the USSR's national economy. In the next 15 years Soviet petroleum production must make a new great step toward solution of the basic economic task of the USSR in the field of petroleum. In the perspective plan of development of the USSR's national economy, according to preliminary estimates which require further modifications, it will be necessary during the next 15 years to increase the output of petroleum to the level of from 350 to 400 million tons and of gas from 270 to 320 million cubic meters.

Such high tempos of development of the petroleum and gas industry will make it possible to change the structure of output of mineral fuels and will be of tremendous importance for the national economy. The part of petroleum and gas in the fuel balance of the USSR would rise from 33% in 1957 to about 65% in 1972. Per capita production of petroleum, taking into consideration the above-mentioned tempos of development of this branch and the expected growth of the population would amount to the following (in kg., according to preliminary data):

1913	1940	1950	1955	1957	1962	1967	1972
60	180	200	358	490	800	1,200	1,600

Realization of this estimated output would bring the USSR very close to the absolute level of petroleum output in the USA and to per capita production of it in that country.

The possibility of achieving in the next 15 years an increase of petroleum output by 300 million tons in the USSR rests not only on the achieved tempos of growth of petroleum production by the Soviet petroleum industry, but also on the availability of surveyed highly productive oil fields and on the certainty established in the last years of finding new oil fields. In the last two years the average annual increase of petroleum output amounted to 13 to 14 million tons. With the application of highly developed technology for the exploitation of oil fields which would make it possible to intensify the process of petroleum extraction and further increase the capacity of the petroleum-producing industry an annual increase of 20 million tons appears to be quite realistic.

The practical realization of this important task of the national economy naturally will be connected with the necessity of solving several new problems, first of all the processing of an enormous and ever-increasing amount of petroleum, the rational geographic distribution of the petroleum-producing and refining industry, preparing sufficient reserves of surveyed oil fields, increasing the effectiveness of exploitation of the existing oil fields, and increasing the productivity of social labor.

In connection with the outlined high tempos of growth of petroleum output in the USSR in the next 15 years, the problem arises of a better ratio between the output of petroleum and its refining, and the creation for this purpose of the necessary capacities of petroleum refining.

In the last ten years our petroleum-refining industry has developed considerably. The level of petroleum refining in 1956 was four times as large as in 1946. At the same time the volume of cracking increased more than five times, which shows a sharply increased level of petroleum refining. In the ten postwar years production of gasoline increased more than five times, of kerosene 3.5 times, of diesel fuel almost twenty times.

The intensive development of the petroleum-refining industry in the USSR in the postwar period to a considerable degree results from putting new petroleum refining capacity into operation, including installations with highly effective methods of production of lighter and more volatile substances — of catalytic cracking and catalytic reforming, installation of alkylation, polymerization, etc. By the beginning of the sixth five-year plan the petroleum-refining industry of the USSR considerably exceeded the volume of refining in the industrial countries of Western Europe and Latin America, occupying one of the first places in the world in the capacity of its petroleum-refining plants.

Nevertheless the development of the petroleum-refining industry in the postwar period lagged behind the needs of the national economy. The problem of creating the necessary ratio between the raw materials base and refining capacities has not been fully solved. Elimination of this lag and increasing the capacities of petroleum refining — and this is especially important for the complex development of the petroleum industry — is now acquiring special urgency.

In the next 15 years the tremendous growth of the national economy sets for our branch a number of important problems in the production of lighter substances — gasoline, kerosene, diesel fuel, lubricants. The growth of production of these substances in these 15 years will increase, as compared with the 1957 level, several times and, as compared with 1950, tens of times.

The solution of these problems will require further intensive expansion of petroleum-refining capacities. By 1960 plants for the distillation of petroleum with a capacity of 45 million tons and cracking plants with a capacity of 26 million tons will be built and start operating in the USSR. In the following years construction of new plants for petroleum refining will proceed on a gigantic scale; the problem is to bring their annual capacity to several hundred million tons.

The problem of creating petroleum-refining capacities should also include consideration of the rational geographic distribution of petroleum-refining plants. The most effective would be the construction of new plants mainly in the eastern and central regions, as well as in the regions of western and eastern Siberia which are the basic consumers of petroleum products. This situation will prevail for several five-year periods.

Parallel to the considerable expansion of the capacities of the petroleum-refining plants the successful development of the petroleum-refining industry in the sixth and the following plans will to a great degree depend upon the application of the new, better methods of petroleum refining which make it possible to improve the quality of motor fuels and will improve the separation of the lighter and more volatile substances from crude petroleum. In spite of the high degree of extraction of such substances obtained in the postwar period and especially in the fifth five-year plan, this problem, which is of extreme importance for the national economy, has not yet been completely solved. For its solution there must be wider application of catalytic processes and first of all of catalytic cracking, catalytic reforming, new methods of obtaining high-quality motor fuels, etc. In the near future production of diesel fuels will be developed in the USSR at a growing rate. Change to diesels in the country's tractor fleet, the growth of production of heavy diesel motorcars, the application of diesels in the navy and in railroad transportation require not only a sharp increase in the production of diesel fuel but also improvement in its quality. For realization of electrification work that is proceeding in the USSR on a large scale, it is necessary to increase considerably the production of turbine and transformer oils and improve their quality. A great role in the solution of this important task should be played by the new methods of refining petroleum. Application of new, better methods of petroleum refining and their further improvement will raise the technical level of the petroleum-refining industry of the USSR and will make it possible to increase the volume of production of high-quality fuels and lubricants.

The petroleum-refining industry is one of the large raw material bases for the creation and development of a new important branch — petroleum-chemical synthesis. Hydrocarbon gases of petroleum refining, much of which is now burnt as boiler fuel, are the most valuable and highly economical raw material for the production of plastics, synthetic rubber, spirits and detergents. For the production of spirits we use annually more than two million tons of grain and more than 700,000 tons of sugar molasses. On the production of soap, detergents, drying oil, grease and other technical products in 1955 up to 400,000 tons of edible fat were spent. All these enormous masses of edible raw materials may be replaced by natural gas, and at the same time large savings would be obtained, because capital investments for the production of chemical products from natural gas are 1.7 times lower and their cost of production three times lower than investments and costs of production of the same products from edible raw materials.

Beside gases obtained from petroleum refining a special place is occupied by gases accompanying the production of crude petroleum; they are a valuable raw material for the development of petroleum-chemical synthesis. In connection with the expected growth of the petroleum industry the supply of such gases will also increase. Thus the creation in the near future in the USSR of a highly developed petroleum-chemicals industry is one of the most important problems. In the solution of this problem a great role belongs to progressive Soviet science which, on the basis of scientific discoveries of the last years in the field of petroleum chemistry and utilizing the available results of research, should help our technology.

The task of high tempos of growth of crude petroleum production and refining in the USSR may be successfully solved only if the geographic distribution of the petroleum industry is further improved. This is especially important for the complex development and rational distribution of the productive forces of socialist society.

The discovery in the postwar period of numerous oil fiel
and petroliferous layers in various regions of the country, especially in the Volga-Ural petroliferous area, and an intensive development of these fields on the basis of new, advanced technology, made it possible to bring about a radica
improvement in the geographic distribution of petroleum production and refining. In a short time new large petroleu
centers were created in the Tatar ASSR, Bashkir ASSR, Kuibyshev, Stalingrad, Saratov, and other regions, which now occupy a leading position in the petroleum industry of the USSR. During 1951-1957 the roles of various regions in the general growth of USSR petroleum output was as follows (in %):

Tatar ASSR	37
Bashkir ASSR	27
Kuibyshev	14
Stalingrad	6
Saratov	4

It is interesting to see how the individual regions change
their ranks in the total production of petroleum in the USS
during the period of 1940-1957:

	1940	1950	1956	1957
Azerbaidzhan SSR	1	3	3	3
Tatar ASSR	-	2	2	1
Bashkir ASSR	4	1	1	2
Kuibyshev region	7	4	4	4
Stalingrad region	-	7	7	7
Saratov region	-	8	8	8

Large changes took place in the development of petroleu
production in the regions of Middle Asia. In 1957 the regio
of the Kazakh SSR, Uzbek SSR and Turkmenian SSR produce
a total of more than six million tons as compared with .25 million tons in 1913 and 1.4 million tons in 1940.

Changes in the Geographic Distribution of Petroleum Production in the USSR (% of the Total Output of Crude Petroleum)

Regions	1913	1940	1950	1955	1956
Caucasus	97.0	87.1	56.7	30.0	27.0
Volga-Ural	-	6.0	29.0	58.0	62.8
Middle Asia & Kazakhstan	2.9	4.8	11.8	8.0	7.1

The importance of the individual Union republics in the development of the petroleum industry has been substantia
changed. In 1957 74 million tons, or almost 76% of the who
output, was produced in the oil fields of the RSFSR, or fort
times as much as the level of output in 1913 and nine times as much as the level of 1940. If we take into consideration that in the general balance of the consumption of petroleu
and petroleum products the Russian Federation occupies th
foremost place, then it means that the concentration here
three-quarters of the petroleum output resulted in an enormous economy of social labor, because it made it possible to bring production of petroleum closer to the places of co
sumption and to organize transportation of petroleum and petroleum products more rationally.

The discovery in the postwar period of many large oil fields in the eastern regions of the USSR created the requisite conditions not only for a rapid development of the pe troleum-refining industry in these regions but also for a basic improvement of the geographic distribution of the petroleum-refining industry. In 1956 almost 50% of the petroleum produced in the country was refined in the eastern and central regions of the country. A substantial improvement in the geographic distribution of the petroleum-refining industry was obtained in recent years through construction of the new large petroleum-refining plants and installations in the eastern and central regions of the country, in the Far East and in Middle Asia.

The Part of Individual Regions in Petroleum Refining (% of the total volume of refined petroleum raw materials)

region	1940	1955
South	84	37
Central	2	5
Volga-Ural	10	47
Others	4	11

In 1955 the eastern regions of the USSR produced more than one-third of the total gasoline and tractor kerosene and almost 50% of the diesel fuel.

Development of the petroleum industry and creation in the east of new large petroleum-producing and petroleum-refining centers helped to improve the geographic distribution of socialist production. However, one cannot consider the problem of the rational geographic distribution of the petroleum industry of the USSR to be fully solved. For example, in the Caucasus regions the output of petroleum exceeds its consumption and in a number of important economic regions the development of this branch is lagging behind the growing demand for petroleum and its refining products. A substantial disparity exists between the production and consumption of petroleum in the regions of Middle Asia and the Far East, as well as in the western and central regions of the European part of the USSR, which makes necessary bringing large quantities of petroleum products into these regions. Here the absence is felt of surveyed industrial reserves of petroleum in the ground for the creation in these regions of a developed petroleum-refining industry. The absence of surveyed industrial reserves of petroleum is hindering the economy of the regions of Siberia, the North and Northwest. Millions of tons of various petroleum products are brought there annually and this results in spending many million rubles. It is time to expedite the development of petroleum production in the Kazakh SSR, Uzbek SSR, Kirgiz SSR and Turkmen SSR, where every year the demand for tractor and automobile fuel and lubricants is increasing.

Defects in the geographic distribution of the petroleum industry also results in substantial long-distance shipments of lighter and volatile substances. In the total shipment volume of petroleum products excessively long shipments, cross-shipments and other irrational shipping of petroleum raw materials and refined products amount to more than ten million tons a year. This is brought about by a number of causes of which the basic one is the necessity of using the capacity of the petroleum-refining industry in the southern regions as well as in Middle Asia for refining crude petroleum from the Volga regions and then sending these refining products to the places of their consumption.

Long-distance shipment is also caused by delays in the opening of the new petroleum-refining capacities in the eastern and central regions as well as by the slow development of the pipeline system. During 1951-1955 pipeline transportation of petroleum increased 2.8 times and in 1955, as compared with 1940, the length of pipelines was almost doubled. However, these tempos are still insufficient. The enormous tasks of the development of our petroleum industry demand a speedy development of the pipeline system. It is necessary to note that the length of the pipeline system in the USSR is still considerably behind that in the United States, where the length of the main pipeline network exeeds 180,000 km. The sixth five-year plan foresees pipeline transportation of 83 billion ton-km. by the end of the plan. This figure should be greatly increased for the following years and this will demand the further speedy construction of the main pipelines. In the long-range plan of development of the USSR national economy the problem of geographic distribution of petroleum production and refining as well as the problem of pipeline transportation should be outlined more precisely and on a solid basis.

The planned development and location of the petroleum industry to a substantial degree is predetermined by the availability of the surveyed resources of crude petroleum and their location. In the postwar period, and especially in the fifth five-year plan, the balance of the surveyed oil reserves of the USSR underwent radical changes. In the last ten years more than 700 new petroleum and gas fields and locations were discovered. Oil fields of large size and reserves were found in the Bashkir ASSR, Tatar ASSR, Kuibyshev, Saratov, Stalingrad and other regions and this substantially changed the geographic distribution of the surveyed reserves of petroleum in the USSR and created the necessary conditions for an intensive growth of petroleum production.

During the postwar period a radical improvement was achieved in the distribution of industrial reserves of crude petroleum on the territory of the country. Now the first place belongs to the regions of the Russian platform, mainly of the Volga-Urals petroliferous area, where more than 80% of the surveyed reserves of crude petroleum are concentrated. This is extremely important, because the Volga-Urals regions and the central regions gravitating to them are the main consumers of petroleum.

During the fourth and fifth five-year plans in the USSR a huge base of surveyed petroleum reserves was created. Now our country occupies the leading position in the world in the rate of discovering industrial reserves of crude petroleum. During the fifth five-year plan the growth of petroleum reserves per surveyed oil well, which characterizes the rate of discovering reserves of crude petroleum, increased, as compared with the prewar period, more than twice and is considerably higher than the corresponding data for the United States or Venezuela. Moreover, in the regions of the Volga-Ural petroliferous area the growth of the industrial reserves of crude petroleum per surveyed drilled hole is ten times as large as in the regions of the Caucasus or Middle Asia, which results mainly from different character and capacity of the newly-discovered accumulations of crude petroleum and the great advantages of the Volga-Ural regions.

The relatively high effectiveness of geological search and geological survey work does not diminish the need for a further search for industrial petroleum reserves. On the contrary, the high tempos of growth of petroleum output in the USSR envisaged for the next 15 years require ensuring the necessary ratio between the output of petroleum and prepared reserves. The heart of this most important economic problem of the petroleum industry consists of creating such an excess of reserves over the output that a planned expanded reproduction in this branch would be ensured. The reserves of petroleum should not exceed the output by some constant amount: this amount will change depending upon a number of factors, determined mainly by the needs of the national economy, the level and tempo of growth of petroleum output, the intensity of extracting petroleum from the geological stratum, the system of exploitation of the oil field, the methods of finding industrially-significant petroleum reserves, the effectiveness of geological-survey work in search for petroleum, etc.

The more intensive the tempos of growth of petroleum output become, the higher should be the requirements in respect to surveying and the higher the effectiveness of the search for petroleum. While at the beginning of the sixth five-year plan the output of petroleum, as compared with 1940, increased 2.3 times, the surveyed reserves of petroleum increased three times. This very effective ratio made it possible to set the task for the sixth five-year plan — almost to double the output of oil in the USSR.

However, reaching by 1960 the level of 135 million tons of petroleum output and raising the level to 350 to 400 million tons by 1972 set different, much more complicated requirements for the people occupied with surveying and preparing petroleum reserves. The question of a proper ratio between petroleum reserves and the level of output at various stages will depend upon the distribution of these reserves by various categories, upon the availability of the resources needed and prepared for the increase of petroleum output, upon the tempos of bringing the new oil fields into operation and the intensity of their exploitation, upon the level of the reserves in operation and also upon finding new petroliferous strata of industrial significance, upon their qualitative characteristics, etc.

The question of a proper ratio between the industrial reserves of petroleum and the level of annual output during the next five-year plans may be solved through ensuring that the reserves be from 25 to 30 times larger than the annual output. This is the minimal ratio which makes it possible — as the economic analysis of the many years of exploitation of oil wells in the USSR shows — to realize the planned increase in the tempos of petroleum output. Of course, in various petroleum- and gas-bearing regions this ratio may be substantially modified depending upon the long-range work of the search for petroleum, upon production possibilities, tempos and level of obtaining petroleum from the oil fields and other factors. For example, the very favorable ratio between reserves of petroleum and the level of its annual output which we have in the regions of the Volga-Ural petroliferous provinces is considerably above the corresponding ratio for the industry as a whole. Such a sharp increase of the reserves of petroleum over its production should be preserved in the regions of the Volga-Ural petroliferous provinces for the next five-year plans. We must keep in mind that the ratio between reserves of petroleum and the annual level of petroleum output (25:1 or 30:1) which corresponds to the minimum necessary condition of development of petroleum output is also required by the level of annual depletion of petroleum in the oil fields (on the average 3% to 4%) and a 25 to 30 year field "longevity" expected in the plans of exploitation of the largest oil fields.

Ensuring the proper ratio between the reserves of petroleum and its output is also closely connected with the problem of the rational geographic distribution of the surveyed resources of crude petroleum. In turn this depends upon the effective geographic distribution not only of petroleum production and petroleum refining, but also upon transportation. It is necessary to emphasize that in spite of the substantial achievements in preparing reserves of petroleu some important tasks of the geological-survey work for petroleum, connected with the improvement of the geographic distribution of the known reserves, have not yet been solvec At the beginning of the sixth five-year plan more than 805 o all surveyed reserves of petroleum were conentrated in the Volga-Ural regions. At the same time the surveyed reserv of such important — from the point of view of petroleum co sumption — regions as the Ukraine, the Far East and Kazak stan played a small part in the balance of the reserves, whi the petroleum reserves of the central regions, Siberia, the North and the Northwest were not yet surveyed.

During the years of the sixth five-year plan and the follov ing period it is necessary to solve the problem of finding ar preparing reserves of petroleum and gas in Siberia in orde to create a powerful petroleum base there. This will be of extremely great importance for the effective utilization of the natural riches of Siberia.

Also pressing is the problem of preparing industrial reserves of petroleum for intensive development of petroleun output in the regions of the Far East, the Ukrainian SSR, Middle Asia, and Kazakhstan. It is necessary to continue the search for petroleum reserves in Azerbaidzhan (which has been successful in recent years), for a substantial increase of the level of petroleum output in that republic. Th high quality of Baku petroleum, which has great advantages over petroleum produced in other regions, makes this problem very urgent.

Ensuring the proper ratio between petroleum reserves ar output will to a considerable degree depend upon improving methods of prospecting and surveying for petroleum, raisin the technical level of petroleum surveying, increasing the tempos of geological searches and surveying, and the wide application of geophysical search methods. In the solution of methodical questions of searching for and surveying of petroleum in different geological conditions a substantial part should be played by science. The development of scientific principles for searching for petroleum and gas in the USSR which are based on the most recent ideas on the origin and the process of formation of petroleum, the laws of formation and distribution of oil fields, creation of new, more perfect methods of searching for and surveying of petroleum — such are the most important taks that stand before our science in the field of surveying for petroleum reserves.

During the next years the volume of deep survey drilling will grow continuously and in several years should reach the level of ten million meters a year. Mastering of such an enormous volume of work must be realized mainly through a sharp increase of the tempos of drilling. The directives of the 20th Congress of the CPSU foresee an average increase of 95% in the speed of drilling survey wells in the sixth five-year plan.

Present Soviet technology in drilling and the new achievements in this field make it possible to advance the task of drilling deep survey wells at a speed of 1,000 to 1,200 meters per rig per month in the next period. Solving a problem so important for our economy will require carrying out a complex of organizational-technical measures, including expansion of the scale of application in deep surveying of the new effective technology of drilling — turbodrilling, electrodrilling, augerless drilling. In increasing the speed of deep survey drilling a large part may be playe by application of more intensive regimes of drilling, transition to drilling the wells with augers of smaller diameter, nore careful preparation of surveying areas, improving organization of production, etc.

Substantial improvements must be made in the planning f surveying and preparing reserves of crude petroleum. Even now we should switch the statistical method of planning n preparing reserves to a method based on ensuring the ptimal ratio between the output of petroleum and its reserves in the country as a whole as well as in various economic regions.

Concentrating the search for and survey of petroleum in he most promising perspective areas and improving by all means the technical level of surveying through supplying t with the best technical means, and improving methods of search and survey, we must systematically increase the effectiveness of geological-survey work, ensuring the solution of the task of preparing petroleum reserves with the greatest possible economy of social labor.

During the sixth five-year plan and the period following he petroleum industry of the USSR must reach a higher echnical level of production and in this way considerably mprove qualitative indices of its work.

At present in respect to the technical level of petroleum production and effectiveness of use of natural petroleum resources the USSR occupies one of the first places in the world, considerably ahead of the USA. This may be seen rom the following data for 1955:

	USSR	USA
increase of output per oil well (in tons)	3210	500
volume of drilling needed for one ton increase in petroleum output (meters)	0.2	3
average daily output per oil well (in tons)	6	1

Effectiveness of exploitation of oil fields in the USSR is determined by meeting the social requirements for petroleum with the fullest exploitation of the natural petroleum riches and the greatest possible economy of social labor. Effectiveness of preparation and exploitation of oil fields depends upon many factors, the basic factors being the productivity of the oil well, the system and technology of exploitation applied, the quality of petroleum in the oil field, geological conditions, the technique of drilling the oil well, and others. As the result of a radical change in the technology and technique of exploitation of oil fields in the postwar period great successes were achieved in increasing he effectiveness of exploitation of oil fields, and first of all in utilization of the new powerful capacities of petroleum production. For example, the ten million tons obtained n 1956 from the oil wells newly brought into exploitation were a 100% contribution to the absolute increase of petroleum output in the USSR, while in 1940 out of 5.5 million ons of petroleum obtained from the new wells only 0.5 million tons, or less than 10%, contributed to the absolute ncrease of petroleum output, while the rest just covered he decline in the output of the old oil wells.

In the prewar years, because of insufficient studies of the problem of artificially influencing petroliferous strata, not more than 40% of industrial reserves of petroleum in the strata was extracted. This resulted in leaving large amounts of petroleum in the strata, lowering the effectiveness of capital investments in petroleum production and raising expenses of production, as well as necessitating bringing into exploitation new capacities of petroleum production. The progress in the methods of work and exploitation of petroleum in the oil fields sharply changed this situation. Through the method of maintaining pressure in the petroliferous stratum the extraction of available petroleum may be increased twice as compared with the exploitation of oil fields by old methods. Technical progress in the methods of exploitation of oil fields made it possible not only to maintain high output of petroleum from an oil well, but also to extract available petroleum in the stratum in spite of a considerable reduction in the number of oil wells in a given area (the distance between the working oil wells in the prewar years was 100 to 150 meters; now it is 400 to 500 meters). This made it possible to increase petroleum output rapidly and yet to reduce considerably the social labor needed. The growth of petroleum output per well brought into exploitation — an important index characterizing the effectiveness of exploitation of oil fields — amounted to 4,000 tons in 1956, as compared with 210 tons in 1940. The 13-million-ton increase in the output of petroleum in 1956 was obtained with 3,000 fewer oil wells than the 1940 standards would require, and this brought an economy of two billion rubles.

The oil fields of the Volga-Ural regions, where large petroliferous strata with high production per oil well are concentrated, are characterized by high effectiveness of exploitation. New technology in the exploitation of petroliferous strata is especially widely applied here. In 1955 the increase of petroleum output for each oil well newly brought into exploitation in the oil fields of the region amounted to 13,800 tons in the Tatar ASSR, 8,000 tons in the Bashkir ASSR, 13,100 tons in Stalingrad region, 12,500 tons in Saratov region and 6,700 tons in Kuibyshev region.

Through this technical progress a substantial improvement was achieved in the structure of petroleum output. In 1956 the output of petroleum in the USSR exceeded that of 1940 by 52 million tons (an increase of 170%) and the part of gusher oil in the whole amount rose from 23% to 64%. This means that in practice almost 90% of the obtained increase in the output of petroleum came from gusher oil, and this resulted in an economy of some five to six billion rubles.

Rates of exploitation play an important role in increasing the effectiveness of the oil fields. As a result of technical progress it becomes possible to increase rapidly the rate of exploitation of the oil fields, that is, to increase the rate of extraction of petroleum and in this way to reduce the time necessary for the exploitation of an oil field. For example, the period of exploitation of the Romashkinskoye oil field, the largest in the USSR, through the use of the new technology will be reduced from 350-400 years to 40-50 years, and of the Tuimazy oil field from 100-150 years to 25-30 years.

The speed of well-drilling has a great influence on the effectiveness of exploitation of oil fields, and drilling wells in this industry requires the largest amount of capital investments as compared with other operations. On the basis of wide application of the new turbine methods of drilling a substantial improvement was achieved in labor productivity in drilling. The speed of drilling petroleum wells increased in 1956 almost 3.5 times as compared with 1940 and amounted to 946 meters per month per rig. By 1940 standards in 1956 the petroleum industry saved the work of 15,000 workers on the drilling of wells. One may judge the influence of technical progress on the increase in tempos of drilling by the following: in the eastern regions where we have to drill hard and strong rocks the speed of drilling exceeded 1,000 meters per rig per month as compared with 150 to 200 meters in 1940. At the same time many of the best drillers succeeded in 1956-1957 in reaching the speed of more than 3,000 meters per rig per month, showing in this way the possibility of a further intensive growth of labor productivity in drilling and increasing the effectiveness of exploitation of oil fields.

Because of technical progress in exploitation of petroliferous strata, in the postwar period a sharp reduction of capital investments relative to the increase of petroleum output was achieved.

One of the indices characterizing the level of capital investments needed for obtaining an increase of petroleum output is the level of such investments needed for obtaining an increase of one ton of petroleum output.* Naturally, the smaller relative investments per ton increase of petroleum output, the greater the effectiveness of capital investments. Capital investments per ton increase in petroleum output are determined — beside the character and productivity of the oil fields in exploitation — to a large degree by the technology and technique of exploitation, tempos and cost of drilling oil wells for exploitation and by the cost of preparing petroleum reserves. In 1957 capital investments per ton increase in petroleum output for this whole branch of industry amounted to about 300 rubles, or 29% of the level of 1940 and 66 2/3% of the level of 1950. Thus, an increase in petroleum output of 70 million tons, as compared with the 1940 level, resulted in an economy of capital investments of more than 20 billion rubles.

Especially effective are capital investments in the petroleum-producing industry of the Volga-Ural regions.

The ratio between capital investments and the increase in petroleum output for different regions in 1946 to 1954 may be seen from the following table:

	per cent of total	
	in capital investments for petroleum output	in increase in petroleum output
Caucasus	47.2	20.4
Volga-Ural	30.3	69.1
Middle Asia	13.1	8.6
Far East	5.7	0.3
Ukraine	2.5	0.8

The difference in the return of petroleum for a given investment can be explained, first, by the unequal rate of increase in petroleum output and the character of the petroliferous strata in exploitation; second, by the necessity of maintaining the achieved level of output in the old regions through systematically bringing into exploitation new reserves of petroleum output and, finally, in a number of regions, by exploiting oil wells with small yields, but valuable for the quality of their petroleum.

In the next 15 years the increase in petroleum output envisaged for the USSR will require relatively large capital investments connected with bringing into exploitation new oil fields with the requisite equipment and preparing petroleum reserves. The volume of these capital investments may be estimated preliminarily at from 150 to 180 billion rubles. Naturally the greatest possible increase in the effectivity of these investments is one of the most important problems of the national economy.

Effectiveness of capital investments in our petroleum production means ensuring expanded reproduction of petroleum (by volume of production, tempo and geographic distribution) with the greatest possible economy of social labor. Increase of capital investments in this branch is determined by a number of factors, first of all by improvement of the operation and technology of the oil fields now in operation. Further improvement of methods of maintaining pressure in the strat will make it possible to increase the extraction of petroleum from the strata, shorten the period of exploitation of oil fields and in this way lower the need in capital investments for exploitation. Improvements in the systems of location of oil wells over the area of the petroliferous strata will make it possible to ensure extraction of reserves from the strata with a smaller number of oil wells, in this way reducing the volume of drilling and exploitation work, reducing capital investments needed for the exploitation of strata.

Substantial possibilities of increasing the effectiveness of capital investments in petroleum output are connected with improving utilization of already existing funds (oil wells). Long conservation of many new wells because of the difficulty of utilizing them is a poor use of invested means; it lowers the effectiveness of capital investments.

Drilling plays an important part in increasing the effectiveness of capital investments in the petroleum-producing industry. Here we have in view first of all further lowering the cost of drilling new wells, which in the next 15 years would number several scores of thousands. Though the petroleum industry of the USSR in recent years achieved great successes in expediting the drilling of wells, nevertheless there are many unused opportunities for further improvement. In the next few years the average speed of drilling wells for exploitation should reach 2,000 to 2,500 meters per rig per month. It is necessary to improve radically the planning of drilling speed, using planning methods based on average advanced standards. Great possibilities for increasing the effectiveness of capital investments in the petroleum-producing industry can be found in improving economic indices of survey work and of preparing petroleum reserves.

Expenses of geological surveying for petroleum make up more than 33% of the general capital investments in the USSR petroleum industry and over 50% of the whole petroleum-producing industry. During 1946 to 1955 the surveying and preparation of industrial reserves of petroleum required an investment of about 30 billion rubles. Utilization of this large capital investment for surveying and preparing reserves in various regions had various degrees of effectivness. The most effective capital investment for surveying and preparing reserves of petroleum was in the regions of the Volga-Ural petroliferous and gas-bearing strata. These regions, whose part in the general capital investments in surveying amounted to 20%, ensured 85% of the total increase of industrial reserves of petroleum in the USSR.

Capital investments in surveying and preparing industrial reserves of petroleum in the next 15 years should amount approximately to 80-90 billion rubles. These enormous sum should be used with maximum effect, and should be spent primarily in the regions where, according to available geological data, we may expect the greatest return (the largest increase of industrial reserves of petroleum) and where the discovery of the new oil fields may help to improve the geographic distribution of productive forces. An increase of effectiveness of geological surveying for petroleum and, in connection with that, of capital investments in the petroleum-producing industry is determined to a large degree by the possibility of a sharp reduction of the number of test wells which do not yield petroleum and the cost of which amounts to several hundred million rubles a year. A great possibility for increasing the effectiveness of capital investments in surveying and preparing reserves of petroleum lies in a substantial lowering of the cost of prospecting for new oil fields and preparing them for operation through speeding up the tempo of surveying strata, improving methods of search and surveying as well as raising the technical level of surveying.

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* Capital investments needed for an increase of one ton of petroleum output reflect expenses which can be directly connected with ensuring the given annual level of petroleum output, as, for example, expenses of drilling and equipping new oil wells, installations for collecting, storing and transporting petroleum and natural gas, application of methods for increasing output, and maintenance of equipment and transport, as well as expenses of surveying the area of drilling.

The solution of the problem of effectiveness of capital investments in the petroleum industry to a large degree depends upon the selection of which new oil fields should be brought into exploitation first, of the rate of developing petroleum output and the utilization of means in each region. A large part should be played by scientifically-supported planning, which should direct capital investments such that the problem of development and geographic distribution of the petroleum industry will be solved with minimal capital investments and cost of petroleum output.

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Raising the level of petroleum output in the USSR in the next 15 years to a level of from 350 to 400 million tons and of natural gas from 270 to 320 billion cubic meters will radically change the structure of the mineral fuels supply in our country and in this way will ensure tremendous savings for the national economy, savings which will amount to many tens of billions of rubles.

K. Simakov,* A. Zaplavny**

Results of the Work of Industry after the Reform of the System of Economic Management

The Kazakh SSR has a powerful industry with a high degree of concentration. In 1956 in terms of the volume of its industrial production it occupied the third place in the USSR. In the republic there are 2,235 industrial enterprises in which 437,000 workers, technicians, and engineers were occupied in 1956; more than 300,000 persons were occupied on construction sites. In correspondence with the decision of the Supreme Soviet of the Kazakh SSR, of June 4th, 1957, nine economic-administrative regions were organized under whose supervision 805 industrial enterprises were transferred with a gross value of production of more than 20 billion rubles.

One of the leading economic-administrative regions of the republic is Eastern Kazakhstan. Its territory is 97,300 sq. km. and its population 710,000, of which 369,000 is urban and 341,000 rural. The gross value of plant production in this region amounts to 12.7% of Kazakhstan's total and the value of the basic industrial funds amounts to 20.9%. Capital investments in this region in 1957 exceeded 850 million rubles.

Under the supervision of the Eastern Kazakhstan Economic Council is the Altai non-ferrous metallurgy system, including plants of ore enrichment, lead, zinc, and copper works. The main deposits of polymetal ores (Zyryanov, Leninogorsk, Nikolaevsk, Novo-Berezovsk, Belousovsk and others) are found on the territory of this region. Enterprises of the Eastern Kazakhstan Economic Council produce tens of thousands of tons of copper and sulphuric acid; in its lead-zinc works copper, antimony, arsenic, tallium, bismuth and other rare elements are also produced. Plants producing concentrates of tin, tungsten, and other metals are in operation. The resources of lead, zinc and copper on the territory of the Eastern Kazkhstan region make a substantial part of the total industrial reserves of these raw materials in the Kazakh SSR.

In the social division of labor in the USSR ore-mining Altai occupies a special place. Up to recent times the basic direction in the development of the industrial-power complex of ore-mining Altai was the production of lead. The development of other branches of the economy was determined, in fact, by the requirements of the complex utilization of polymetal ores as a basic source for obtaining lead and for the complex development of the region's economy and by the possibility of using cheap power from the hydroelectric stations of the upper reaches of the Irtysh and its tributaries on the right bank.

The economic council of the Eastern Kazakhstan economic-administrative region set before itself the following task: not only to preserve the leading place in the country in the production of nonferrous metals, but also to organize the production of new metals and elements.

The production of lead will remain the basic branch of industry for the next fifteen years in the ore-mining Altai. At the same time the development of the copper industry must acquire an independent position in view of the expansion of production in the Nikolaev copper mines.

Thus one of the most important tasks of the economic council is to ensure the complex development of the regional economy, the maximal utilization of the available opportunities in order to manage the economy with maximal economic effect and to expand non-ferrous metallurgy as a branch of all-Union importance. In connection with this the economic council concentrates its attention on the solution of the following problems: to end in the districts of the ore-mining Altai the disparity between the capacity of the enriching factories and capacity of metallurgical enterprises. It is known that the development of the ore-enriching factories is determined by the character of the deposits of polymetal ores, their compactness and geological conditions as well as b the availability of transport connections and of water and power at the site of deposits. The capacities of the mines and ore-enriching factories should ensure full-capacity work of the existing metallurgical plants, plants under expansion and plants under construction. A comparison of individual deposits of polymetal ores in terms of capital investments, date of completion, water supply and transport conditions, as well as concentration and magnitude of deposits made it possible to come to the following practical conclusion: the greatest economic effect will be obtained through the construction of ore-enriching factories in the districts of the Zyryanov and Irtysh polymetal combinates.

The second problem is connected with the liquidation of the disparity between the scale of production of building materials, especially cement, and the volume of construction work. In this connection the economic council found it advisable to expedite construction of the Semipalatinsk cement plant, to expand capacities of the Ust Kamenogorsk and Zyryanovsk brickworks and to carry out preparations for the coming exploitation of the Sazhaev deposits near Zyryanov city for the production of cement of low trade marks as well as of lime, calcium carbide and building stone. A comprehensive development of the construction industry, especially the production of building materials, is connected with the solution of the problem of labor reserves. Carrying out plans of economic development of this region demands the continuation of a systematic flow of labor from other regions. The envisaged level of state construction and the construction of houses by individuals as well as of cultural and public utilities' construction necessitates the organization by the economic council of plants producing standard houses. In accordance with the decision of the CC of the Kazakhstan CP and of the Council of Ministers of the Kazakh Republic, in 1960 plants producing standard houses with a total capacity of 300,000 sq. mt. of

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floor area and assembled construction details with a total area of 250,000 sq. mt. a year will be brought into operation. At the same time a ferroconcrete pipe plant will be built. A special section of this plant will produce 250,000 sq. mt. of parquet from waste materials, 100,000 sq. mt. of window casements and 50,000 sq. mt. of doors and fixtures a year.

The building industry will be greatly developed. We foresee the construction of a plant manufacturing large wall blocks, plants for the production of silicate bricks and light fillers, a polygon of assembled ferroconcrete blocks and ferroconcrete details, a plant of reinforced ferroconcrete construction details and quarries for the production of lime. A decision was also made about the construction of a plant producing wood fiber boards from the wood wastes. For this purpose furfurol will be utilized which is obtained through a complex processing of reeds and sunflower husks of the Ust Kamenogorsk vegetable oil plant.

The third problem is that of overcoming a possible disparity in the development of industry and of power production. The growth of power production in our economic region is based on the expanded use of hydroenergy of the upper reaches of the Irtysh River between lake Zaisan and Semipalatinsk. In 1953 the Ust Kamenogorsk state power station started its operation. Now under construction is the Bukhtarminsk state power station which, according to the plan, will start its operation in 1960. Also envisaged is the construction of the Shulbinsk state power station on the Irtysh, 40 km. above Semipalatinsk. Its construction will solve another very important problem of interregional importance: supplying Irtysh water from the lake behind the dam of the electric station to the waterless and dry regions of Central Kazakhstan. A great part in the development of power will be played by the tributaries of the Irtysh on its right bank such as the Kaldzhir, Bukhtarma, Uba and Ulba. Out of the five state power stations the construction of which is envisaged on the Ulba three are now in operation: Ulbinsk, Khariuzovsk and Tishinsk.

Beside extremely rich resources of hydroenergy in the Eastern Kazakhstan economic region there are also available substantial fuel resources, namely Kenderlyk coal — oil shale deposits 50 km. southeast of the city Zaisan with reserves of about 3.5 billion tons of oil shale, more than two billion tons of lignite and 0.5 billion tons of coal. Creation of an energy base on the basis of the Kenderlyk coal-oil shale deposits will ensure utilization of reserves of copper, rare metals and building materials discovered recently in southern Altai. Electrostations using the fuel of Kenderlyk basin will be joined with the Altai power grid. It is also advisable to use the oil shale of Kenderlyk for the production of fuel oil and gas for industrial enterprises and for the population as well as for the production of a number of valuable products including resins.

The fourth problem, very important for the improvement of the operation of plants under the Eastern Kazakhstan economic council is the merger of small plants and the development of their specialization and rational cooperation. We also have to unite subdivided construction sites which will make it possible to concentrate basic means and resources towards setting into operation the most important projects. For this purpose on the basis of mining-construction administrations the Eastern Kazakhstan economic council organized a mine construction trust while numerous forest enterprises were merged into a combinate "Altai Forest." In the field of mining small mining sections were merged. A number of food industry plants were merged (wine bottling and vodka-spirit plants in Ust Kamenogorsk). Supply departments of construction trusts (ORS) were merged with departments of food supply (Prodsnabs) of the Ust Kamenogorsk, Leninogorsk, and Zyryanovsk Combinates.

The Eastern Kazakhstan economic administrative region is rich in forests. In the district of the river Belaya Berel and lake Marka-Kul are found valuable stands of Siberian larch and cedar. During the next seven years the Combinate Altai Forest has to bring production of timber up to two million cubic mt. a year. For this purpose there will be organized new powerful forest promkhozs in the region of the Belaya Berel. It is also planned to organize a forest promkhoz in the region of Lake Marka-Kul from which timber would be floated down the Kaldzhir to the Buran landing on the Black Irtysh and then farther down to Lake Zaisan and the Irtysh. For this purpose it is planned to construct new roads, to equip the forest promkhozs with new machines and implements, to improve the state of forest service stations, and to use helicopters for moving valuable wood from places otherwise very difficult to reach.

Merging and enlarging enterprises is combined with carrying out measures which make it possible to use more rationally engineers and technicians: they are concentrated in the departments of research, bureaus of constructors and at the experimental stations.

The existing system of bonuses for engineers and technicians does not provide sufficient incentives for the growth of the volume of production and for lowering the cost of products. Under this system bonuses are paid in case the plan is fulfilled both in respect to the volume of production and in respect to the costs. In practice this means that the less strenuous the plan is, the smaller the target established for lowering costs, the larger the bonus that is paid (up to three salaries). In the draft of the new regulations concerning bonuses, prepared by the economic council, the size of the bonus for the engineers and technicians would depend upon the fulfillment of the plan by volume of production and by lowering of costs, but only if the growth of production and the cost of products are taken into consideration through a comparison with the level achieved in the preceding year. This draft has been completed and presented to the State Planning Commission of the Kazakhstan SSR and the USSR Council of Ministers' State Committee on Labor and Wages.

In order to develop local initiative in carrying out state goals it is also necessary to expand the rights of directors and plant managers.

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Reform of the system of management in industry and construction under conditions of Eastern Kazakhstan brought the first positive results. For example, in 1957 the plan of the output of polymetal ores was overfulfilled by 5%. Also the plan of production of lead, zinc, copper, cadmium, sulphuric acid, tin, and tungsten concentrates was substantially overfulfilled. The annual plan of gross production of non-ferrous metallurgy was overfulfilled by 2% and the level of production, as compared with 1956 (100%) amounted to 112%. The reform of the system of industrial management made it possible to improve the organization of labor and to overfulfill the plan of growth of labor productivity by 4.7%. The economy obtained from the lowering of costs amounted in 1957 to more than 18 million rubles. The activities of enterprises under the economic council in the second half of 1957 had a more rhythmic character, the plans in respect to the assortment of products, especially in the production of metals of higher grades and the change-over to the new technique and technology, were fulfilled. In the second half of 1957 the output of ore increased by comparison with the first half of the year by 16% and the total production of lead, zinc, copper and cadmium increased by 6%. The economy from lowering costs amounted in the second half of 1957 to 12 million rubles as compared with six million rubles in the first half of the year. During the first half of the year the losses — because of the increase of costs by comparison with those envisaged in the plan in a number of enterprises — amounted to six million rubles; in the second half of the year they were reduced to 2.3 million rubles.

Many practical questions of management in industry and construction are now solved better and considerably more quickly than before the reform. The workers, engineers, technicians, the workers of the region occupied in the economy, as well as Party, Soviet, and other workers actively take part in the management of the regional economy. All this makes possible the more rational utilization of the basic and circulating funds of the industrial enterprises and construction organizations.

In the light of the new tasks the personnel of industrial enterprises and construction sites of the economic council re-examined the socialist obligations undertaken by them and increased them. On the eve of 1958 the miners and workers of the Leninogorsk polymetal combinate occupied in the production of concentrates, in connection with carrying out the state plan for 1957 ahead of schedule in terms of all indices, appealed to the workers of all mining-enriching enterprises of the Kazakh SSR to assume for 1958 new, higher socialist obligations. This appeal, approved by the CC, Kazakhstan CP, found a ready response in all mining-enriching enterprises of the republic and especially among those of the Karaganda and Southern Kazakhstan economic councils with which the enterprises of the Eastern Kazakhstan economic council have been in socialist competition since last year.

The technical-economic commission of the economic council examined the first draft for the long-range development of industry and construction for the Eastern Kazakhstan economic region up to 1965 inclusive. This seven-year plan foresees beside a substantial growth of production also great improvement in the technique and technology of non-ferrous and rare metal production, improvement in specialization and cooperation in industry and a further increase of the complex utilization of mineral raw materials and expanding the kinds of production which require much power. The first draft of the perspective plan for 1958-1965 foresees an increase of gross production in the enterprises of the economic council by 190%, in the production of non-ferrous metals — by 170%, of power — by 250%, of production of timber and lumber manufacturing industry by 370%, of construction materials by 160% and of food industry by 130%.

The main source of ensuring such a large growth of production will be better use of the existing equipment, more intensive processes based on the application of new techniques and the substitution of obsolete equipment with new. Not less than 70% of the planned increase of the gross production will be obtained through an increase in labor productivity, namely 75% in industry and 72% in construction.

The output and enrichment of the lead-zinc ores in 1965 will increase 50% as compared with the level of 1958. With the coming organization of the output of pyrate copper zinc ores on a large scale at the Nikolaev deposits the ore-mining Altai will take an important place in the all-Union production of primary copper. The use of a wider assortment of the high-quality reagents, the improvement of the apparatus of enrichment, the application of combined technological schemes — all this, undoubtedly, will improve the indices of selection and extraction of metals for concentrates. The first draft of the seven-year plan foresees increasing the index of extraction of lead from the lead concentrate to 81.5% and of the zinc from the zinc concentrates to 81%, improving at the same time the purity of metals, in spite of lower metal contents in the original ores. Reconstruction of the Leninogorsk, Ust Kamenogorsk and Irtysh combinates will make it possible to increase during the life of the seven-year plan the production of soft lead by 28%, of zinc by 23%, of primary copper by 67%, of cadmium by 90%.

Production of sulphuric acid will increase through expansion of the scale of roasting zinc concentrate. The cost of one ton of the sulphuric acid will not exceed 200 rubles and this will make possible its use on the spot for the production of organic fertilizers.

In order to increase the extraction of metals from ores and concentrates the construction of three slag sublimation installations is envisaged. Such an installation existing at the Ust Kamenogorsk combinate was very effective: its capital investments paid for themselves in ten months. During 1957 alone this installation brought an additional 4,000 tons of lead and zinc from the slags of lead production. It is very important that with the application of the hydrometallurgical process, the use of sublimation will also make it possible to obtain selenium, tellurium, thallium, indium, germanium and gallium.

At the same time the construction of industrial enterprises, houses, cultural buildings and public utilities to the total amount of about 10 billion rubles is planned for 1959-65. The annual volume of capital investments during the seven years of the plan will increase almost 2.8 times. In the region of ore-mining Altai new power-consuming industries will be created.

Light and food industries, especially fish, meat and milk industries, will greatly increase their production. In 1956 production of meat amounted to 4,483 tons, the catch of fish to 5,668 tons, the production of butter to 2,292 tons, of vegetable oil to 8,013 tons. During the seven-year plan production of meat will increase 2.5 times, of vegetable oil — twice, of fish and fish products — from seven to eight times It is planned to build in Ust Kamenogorsk a meat combinate and a knitted goods factory and to carry out the reconstruction of the Krasin butter plant and of the milk plant. In Leninogorsk a meat combinate, a milk plant and a sewing factory will be built; in Zyryanovsk — a milk plant, a confectionary, etc. A number of butter and cheese factories will be built in rural localities and in district centers.

Housing construction in Eastern Kazakhstan, for which it is planned to appropriate two billion rubles, will be greatly expanded. This will make it possible to bring into use 1,295,000 sq. mt. of floor area.

In the perspective plan of development of industry of special importance is the working out and application of new technique and technology in non-ferrous metallurgy. This plan includes some basic problems which are being worked on by collectives of the Altai Mining-Metallurgical Researc Institute, the Academy of Science of Kazakhstan in Ust Kamenogorsk, the All-Union Research Institute of Non-Ferrous Metallurgy in Ust Kamenogorsk as well as a number o institutes in Alma-Ata, Moscow, Kiev, Leningrad. In order to expedite the application to production of the results of th research construction of a pilot plant and an enrichment factory is now being completed at the All-Union Research Institute of Non-Ferrous Metallurgy at Ust Kamenogorsk. The Kazakh state institute for designing non-ferrous metal-

(Continued on Page 46)

G. Levin:

Capital Investments in Ferrous Metallurgy and the Length of Time Needed for the Construction of New Industrial Enterprises

The total sum of capital investments in ferrous metallurgy during the Fifth Five Year Plan considerably exceeded the investments in the preceding five-year plan. If the average annual capital investments in ferrous metallurgy during the First Five Year Plan is 100, then investments during the Second Five Year Plan amounted to 194, during the pre-war years of the Third Five Year Plan (1938-1940) to 134, during the war years (1941-1945) to 217, in the Fourth Five Year Plan — 332, the Fifth Five Year Plan — 494 and in 1956 to 575. The continuous growth of capital investments in ferrous metallurgy is convincing proof of the advantages of the socialist economy and of the great attention given by the CP to this basic branch of the national economy of the USSR.

The largest part of capital investments in ferrous metallurgy goes into construction-assembling work (76% of investments during the Fourth Five Year Plan and 73% during the Fifth Five Year Plan) carried out mainly by contracting organizations (about 75% of the total in the post-war years), that is, by organizations of the construction industry. Thus a large part of these capital investments is made up of the delivery price of products made by the construction industry. This price is determined by the estimates prepared at the time of designing the object of construction and is based on the cost of building this object.

The cost of construction as expressed in delivery prices is not the same for similar objects of construction: it is fixed after taking into consideration conditions of constructing the given objects in different economic regions and on different construction sites (availability there of reserves of construction materials, climatic and ground conditions, topography of the locality, the nearness of the site to the sources of power and water supply, to transport lines, etc.).

In the overwhelming number of branches of industry the prices for products of the same kind are the same, independently of where and under what conditions and by what enterprises they are produced. As a rule, the prices are based on an average level for all enterprises of a given branch. Establishment of individual prices on the products of the construction industry is a logical corollary of one important feature of this branch of industry: the basic kinds of its products — buildings, structures, roads, bridges, canals, etc., are fixed to the ground, or, using Marx's expression, they have roots in the ground.

This is what determines the peculiarities of the method of calculating the cost of products of the construction industry. In the program of construction the cost of basic kinds of work done is calculated in the following measures: earth removed or bricks laid — cubic mt.; assembly of metal construction details in tons; laying out of the lines of communications in linear meters, etc. Such indices are, undoubtedly, necessary. On their basis accounts are settled between the customer and the contracting construction-assembling organization. They make it possible to compare the level of mechanization of construction between various objects in different branches of industry at different construction sites, the degree of utilization of construction and assembling machines, the advantages of the use of the new construction materials, the productivity of labor achieved in construction, the forms of organization of labor, etc. But we cannot limit ourselves only to these indices because they characterize only the production level of a given type of work (for example, earth-moving). It is also not enough, for example, to determine the cost of a square meter of productive area or of one cubic meter of building, etc. These and similar indices are one-sided and only subsidiary indices. If we consider them and apply them as basic ones such a practice would make it possible for a construction organization to fulfill and overfulfill its production plans even if bringing this product into operation were not on schedule. Moreover, in such a case the determination of the actual cost of the finished product, which includes the whole complex of work carried-out, would be made very difficult.

In order to overcome these difficulties it is necessary to take as a unit of products produced by the construction industry not this or that volume of some particular work, but their aggregate, that is a plant, its section, or installation under construction or reconstruction. But these plants, sections and installations even in the limits of the same branch of industry differ from each other by the volume of production, assortment of their products, their quality and forms of connection with adjacent sections and plants. That is why in comparing the costs of construction of these sections or plants and evaluating the level of capital invested in them the necessity arises to determine the relative capital investments. In order to find this ratio the amount of capital investments is divided by the mass of products produced during the year by the objects of construction — by the plant, section or individual aggregate. Such an index is considerably more concrete and richer in its content than the cost of a cubic meter of earth removed or the cost of a ton of assembled metal construction details or a square meter of the production area.

In the index of relative capital investments these investments are expressed in their changed form as means spent in the creation and expansion of the basic funds of an enterprise or section, that is, are considered in their action, in the process of material production. Because of that relative capital investments or the capital-absorbing capacity of the products is one of the most important indices of the economic effectiveness of capital investments, namely an index of the cost of the product in the construction industry expressed as delivery prices per unit of the product of the construction object. On the other hand, another index of effectiveness of capital investments is an index of effectiveness of these investments measured by the quantity of the

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* For the purpose of discussion.

product per unit of capital investments embodied in the basic funds of an enterprise which manufactures these products.

In ferrous metallurgy, beside the expansion of the total volume of construction the sum of capital investments per ton of increase in steel production is also increasing (by comparison with the Second Five Year Plan). During the First Five Year Plan relative capital investments were extremely large — they amounted to 6,069 rubles per ton increase in steel production. This is explained by the fact that during this period construction of the largest metallurgical enterprises was started which began to produce goods on a large scale only years later. In the Second Five Year Plan the corresponding figure was 1,472 rubles, in the Fourth Five Year Plan — 1,864 rubles, in the Fifth Five Year Plan — 2,289 rubles. It is expected that in the Sixth Five Year Plan this figure will increase further. The growth of capital investments per ton increase in steel production is brought about by several causes.

First of all it became necessary to bring into exploitation relatively poor ores (for example, Krivoi Rog quartzites) which require enrichment as well as ores the deposits of which are at a considerable distance from the metallurgical plants (for example, Olenegorsk deposits), or deposits which need large investments in order to prepare them for exploitation. In the last 15 years the iron content in the mined ores of the most important mines was reduced: in Krivoi Rog by 3.2%, at Bakalsk by 2.4%, at Magnitogorsk by 4.1%, at Bogoslovsk by 1.4%. As compared with 1940 the part of the Krivoi Rog ores richer in iron content in the total output was reduced by 14%, of Magnitogorsk ores — by 3%. At the same time the part of the ores with relatively low iron content is growing, such as Gornaya Shoria ores, Olenegorsk ores (the iron content of these ores is from 32 to 33%), of Dashkesansk ores (iron content of these ores is 38%), etc. According to the plan of construction the capital investments needed by Sokolovsk-Sarbai and Atasui ores and Krivoi Rog quartzites which are now being brought into exploitation are approximately twice as high as the capital investments into the Krivoi Rog and Magnitogorsk deposits. In 1946-1950 and 1951-1955 the ratio of capital investments was double those during the Second Five Year Plan. During the action of the Fourth Five Year Plan capital investments per ton of increased capacity of iron ore production amounted to 132 rubles; in the Fifth Five Year Plan it reached 185 rubles. The growth of capital investments per ton of iron ore is also caused by the long period of construction. For example, the Abakansk ore mine was under construction for ten years. The iron ores of the Kursk magnetic anomaly and of Belgorodsk deposits especially unique in the amount of rich iron ore are brought into exploitation extremely slowly; the cost of these ores, presumably, will be lower than the cost of the concentrate made of the Krivoi Rog quartzites.

Second, the cost of construction is still extremely high because of the unsatisfactory work of the construction-assembling organizations and superfluous requirements in designing. Trusts which carry out the construction-assembly work at the construction sites of the new metallurgical plants and of those which are being reconstructed systematically receive powerful technical means exceeding the level of mechanization of the basic processes. In the last five years the number of bulldozers, tower cranes, truck cranes at the construction sites of the Dzerzhinsky, Voroshilov, Makeyevsk, Transcaucasian, Cherepovets, Novo-Tagilsk metallurgical plants was more than doubled. However these machines were not sufficiently used: many machines in good order stood idle.

Third, up to now dispersion of means directed into capital construction still is permitted. The average capital investments per metallurgical plant in the post-war years is several times larger than during the First Five Year Plan: in the First Five Year Plan it was 96.3 million rubles, in the Fourth — 180.1 million rubles, in the Fifth — 244.7 million rubles. This concentration of investments is a reflection first of all of the process of concentration of production: the average production of pig iron per plant increased from 82,000 tons in 1928 to 267,000 tons in 1945, 533,000 tons in 1950, 854,000 tons in 1955 and exceeded 900,000 tons in 1956. The part of the metallurgical plants producing annually more than one million tons increased from 39% of the total in 1940 to 78% in 1956. For steel the corresponding figures were 40 and 66, for rolled steel — 42 and 62.

It is necessary to emphasize that the concentration of capital investments is progressing less rapidly than the concentration of production: the average volume of pig iron production per plant increased from 1928 to 1956 more than ten times and of rolled steel about five times, while the average amount of capital investments per plant during the same period increased only 2.5 times. An insufficient degree of concentration of capital investments is seen in the fact that substantial means are invested in many ferrous metallurgy plants in a relatively small volume of investments per plant. During the First Five Year Plan 90.6 million rubles were invested in plants with investment of 20 million rubles per plant or less; in the Fourth Five Year Plan 160.4 million rubles and in the Fifth Five Year Plan 176.8 million rubles were invested in such plants, or almost double the amount invested per plant during the First Five Year Plan. During the Fifth Five Year Plan the total investments in plants with an average investment per plant of 100 million rubles or less increased 1.3 times compared with the First Five Year Plan, namely to 1,606.7 million rubles as compared with 1,319.8 million rubles during the First Five Year Plan. Total investments in the old, small Urals metallurgical plants during 1930-1955 reached 558 million rubles. Moreover relative capital investments in these small plants with a low technical level of production were 1.5 times higher than relative capital investments in all expanded or reconstructed plants while the cost of steel at such plants was 22% higher than the average for ferrous metallurgy.

Fourth, the length of construction of the new metallurgical plants as well as of expansion and reconstruction of those in operation is impermissibly long. Yet the experience of the best builders shows that it is possible to build in a short time even such complex objects as modern metallurgical sections. At the Dzerzhinsky, Makeyevsk and other plants powerful blast furnaces were built in a record short time: in less than six months. Yet on the whole the construction of metallurgical plants is a slow process. Complex designing occurs, determining the length of construction of metallurgical plants with a full cycle of production from five to seven years. The construction of the Transcaucasian metallurgical plant in Rustavi (Georgian SSR), begun in 1945, should be completed next year. The first steel was produced in 1950, or five years after the beginning of construction. Production of pipes and pipe fittings began in 1951, and the first batch of the basic product of this plant — seamless steel pipes for the petroleum industry — was issued in 1952. Production of coke and of pig iron began only in 1954, that is, nine years after the start of construction. The construction of the Cherepovets metallurgical plant began in 1948 and the first production was issued only after seven years. Up to now the open hearth section and rolled steel section are not ready for operation though production of pig iron in large quantities at this plant is clearly not advisable. The construction of the Orsk-Khalilov metallurgical combinate also drags out to impermissible lengths.

The relative capital investments are greatly influenced by the technical level of production. Technical progress leads to an increase in scale of production at enterprises, to the increase of capacities of the basic aggregates. For example, relatively recently the annual capacity of a blooming mill, ensuring the supply of pressed metal to a group of planishing rolls, varied from 1.2 to 2 million tons of ingots; now the capacity of such an aggregate varies from 3.5 to 4 million tons. The capacity of blast furnaces also continued to increase. Their useful volume frequently reaches 1,500 to 1,700 and even 2,300 cubic meters. The capacity of an open hearth reaches up to 500 tons and of electrosteel furnaces 180 tons. The increase in the scale of production as a rule results in the decrease of relative capital investments. On the other hand, however, the introduction of continuous milling process with many stands, mechanization of the processes demanding much labor, automatization and arming metallurgical plants with modern control and measuring instruments in a number of cases results in an increase of relative capital investments, because increase in their cost outruns the growth of production. For example, the weight of the new rail structural mill at the Nizhne-Tagilsk plant amounts to 19,000 tons, while that of the old-design at the Dzerzhinsk plant to 3,100 tons. Yet the new mill's capacity is only 1.5 times as large as of the old one. Because of that the weight of the mill of the Nizhne-Tagilsk plant per 1,000 t. of rolled steel was four times as high (12.6 t.) as that of the Dzerzhinsky plant (3.1 t.). The same tendency appears when we compare the weight of the installation per 1,000 t. of rolled steel of the continuous rod-rolling mill at the Krivoi Rog plant with the mill of the old design at the Petrovsky plant: seven tons for the first and 3.7 tons for the second. When the first tendency predominates — that of the growth of production volume as a result of the application of new technique — relative capital investments are reduced. When the second tendency predominates — that of the growth of the relative weight of the installation, of the capacity of its engines, of productive area — relative capital investments are increased.

One of the basic results of technical progress in ferrous metallurgy is improving the quality of products (the growth of the part of electrosteel in the total, production of rolled steel with increased requirements in respect to tolerance, smaller thickness of the walls of pipes, wide application of heat treatment, etc.) as well as mastering new kinds of rolling (for example bent profiles). Because of that metallurgical rolling operations become more and more complex and this necessitates the growth of relative capital investments and at the same time improves the quality of metallurgical products, makes them cheaper and more durable.

Some of the enumerated factors logically lead to the increase of relative capital investments which is economically justified because of the growth of labor productivity and a substantial lowering of the cost of production. At the same time in the majority of cases parallel to the increase of the relative capital investments the amount of embodied labor expended per unit of product produced with the help of new technique is lowered because the application of this technique makes it possible to lower the standards for the expenditure of various materials. In rolling steel on the continuous mill of the new type the coefficient of metal expenditure reduced from 1.2 to 1.05. Application of the new technique also greatly reduces the expenditure of present labor.

It is necessary to remove the cause of the increase of relative capital investments brought about by the shortcomings of construction. Here first of all the fact should be mentioned that the periods of construction are too long. This is of decisive importance in changing relative capital investments calculated for this or that past or planned period (for example, for a five-year period). If during, say, five years on the construction of a given object some means are spent and at the same time the object produced nothing, then it means that the relative capital investment is an infinitely large quantity.

The most important construction objects of ferrous metallurgy during the Fourth Five Year Plan were the Transcaucasian, Bakinsk and Cherepovets plants. The Orsk-Khalilov metallurgical combinate also may be included in this number because in the years preceding the Fourth Five Year Plan only insignificant investments into it were made. In the Fifth Five Year Plan the construction of these plants was in full swing and during the Sixth it may be basically completed.

In the Fourth Five Year Plan relative capital investments for these four metallurgical plants — the construction of which started in the post-war years — were tremendous. Three of these four during that period did not turn out any metallurgical products on their capital investments. During the Fifth Five Year Plan the total sum of capital investments for these four plants increased by 1,593.1 million rubles; but the relative capital investments per ton of increase in steel production was reduced 4.3 times and per ton of increase in pig iron production to 3,319 rubles. The reason for this is that in all these four plants during the Fifth Five Year Plan the basic metallurgical aggregates producing pig iron and steel started operation. During the Sixth Five Year Plan we should expect even greater reduction of the relative capital investments in these plants though the total sum of expenditures on their construction will continue to increase.

Relative Capital Investments for the Four Plant Group under Construction in Ferrous Metallurgy in the Post-War Period

	relative capital investments (rubles per t.)	
	per ton increase in pig iron production	per ton increase in steel prod.
Fourth Five Year Plan		
Transcaucasian plant		9,964
Bakinsk plant	-	
Cherepovets plant		
Orsk-Khalilov plant		
total		16,976
Fifth Five Year Plan		
Transcaucasian plant	2,246	2,500
Bakinsk plant	-	1,190
Cherepovets plant	9,336	
Orsk-Khalilov plant	3,319	
total	3,319*	3,968

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* In calculating this average the expenditures for the Bakinsk plant were not considered because it has no blast furnace section.

As may be seen from these data, the main cause of the increase in relative investments is the great length of contruction. If construction of each of these plants were comleted during only one of the post-war five-year plans, the relative investments for each of them and for all of them taken together would be considerably lower.

The experience of construction of metallurgical plants in the USSR irrefutably shows the possibility of greatly reducing the length of the construction period. For example, in 1935, seven years after the beginning of the construction of the Magnitogorsk metallurgical combinate, there were brought into action a mine, three ore-treating factories, four coke ovens, four blast furnaces, 11 open hearths, one blooming mill, two billet mills, three planishing rolls and a number of auxiliary and subsidiary objects. Capital investments for the production of one ton of steel at the Magnitogorsk combinate during the whole post-war period amounted to 1,833 rubles.

The influence of the length of the construction period on the magnitude of relative capital investments is especially clearly seen from the comparison of the operation data with the expectations at the time of designing. In the plan the relative investments for the Transcaucasian metallurgical plant were determined at 2,060 rubles for the production of one ton of steel, for the Cherepovets plant 1,430 rubles, for the Orsk-Khalilov plant 1,1842 rubles and for the Bakinsk plant — 1,330 rubles. These indices of relative capital investments are somewhat lower than the actual ones, calculated from the data of the annual reports, though the actual cost of construction deviates only little from the planned one. Large differences between the actual and planned data in the magnitude of relative capital investments are caused by one circumstance: the planned indices did not take into consideration the factor of time. It is assumed that the whole planned sum of capital investments was properly spent and all objects of construction have been delivered for exploitation, that is, they function as the basic funds of an enterprise in operation. On the other hand, the productivity of the designed enterprises is considered as equal to its designed capacity. Thus relative capital investments are determined at that time as independent of the length of the construction of an enterprise; it is assumed that its designed capacity is fully mastered. In view of this in the analysis of relative capital investments one should not limit oneself to the indexes based on the data of the plan of construction, but one should also use widely the data of the annual reports.

Capital construction is one of the basic branches of modern industry. The main feature of this branch is the long period needed for its production. The ready product of the building industry is the complex of this or that industrial object ready for operation, for example, a blast furnace, a rolling mill, the plant's thermo-electric station, etc. Only when the objects of construction are delivered and begin to turn out products for the production of which they were built may one consider the period of construction in the construction industry completed. During this long period of construction enormous masses of material and human resources are diverted. Thus the Cherepovetsk metallurgical plant produced the first pig iron seven years after the start of its construction; during that period massive means were invested into it. These resources are diverted from productive use in other branches with considerably shorter production periods. At the same time the means directed for capital construction ensured expanded reproduction in all branches of the national economy and raising their technical level. Because of that the society in which the means of production are the people's property has this problem: to determine the volume of means diverted for capital construction in such a way that there will be no excessive strain on the national economy. The shorter the period of construction, the higher are tempos of expanded socialist reproduction.

In our special literature too little attention is paid to the influence of the length of the construction period on the magnitude of relative capital investments. Moreover a number of writers have distorted such a clear conception as the diversion of means of capital construction. Other writers have substituted wrong definitions and terms for it.

The most consistent partisan of the requirement that the additional capital invested be considered (that is, of the method of comparing the differences in capital investments with differences in the cost of production) is Professor V. Norozhilov, who is the author of a theory of so-called expenditures of reverse connection. According to this theory the capital investments in a given enterprise always cause a loss of other possible alternatives for capital investment. In view of this, according to V. Novozhilov, it is necessary to consider not only the positive effect from these investments in the form of lowering the cost of production of a given enterprise, but also the loss caused by giving up alternative capital investments measured by the magnitude of expenditures of the reverse connection. We believe that at the basis of this theory lies an incorrect understanding of the interaction of the component parts of the unified socialist national economy. Considering the total sum of capital investments which the national economy has, for example, for the next five years, as strictly limited and considering the demand of the national economy for certain products and the total volume of production independent from the possible changes of the technical level of production, V. Novozhilov inevitably comes to the conclusion that one branch of the national economy is developed at the expense of another. But in reality the capital investments, for example, in the ferrous metallurgy form the basis of the development of all other branches of the socialist economy. Consequently in evaluating capital investments we should consider the positive influence on all branches of the national economy, on the growth of the technical level of production (for example, in ferrous metallurgy) and not a loss caused to these branches.

In spite of the just criticism which this theory underwent, its basic tenets have been revived on the pages of "Problems of Economics" by A. Konson.

Corresponding member of the USSR Academy of Science Z. Chukhanov comes to essentially the same conclusion from a different position. He thinks it is necessary to take into consideration the loss which the national economy suffers through tying up a part of the capital investments. This tying up, according to him, takes place after the delivery fo operation of the object of these investments even when all sections and aggregates making up the given object are operating at full productive capacity. The tying up of capita investments in the basic funds of an electric station operating at full capacity, emerges, according to Z. Chukhanov, because a substantial part of the capital investments, determining the cost of the basic funds remains unutilized in the production of power during the year. The magnitude of thes "tied-up" means will be larger, the higher the relative capital investments and the longer the life of the object. The cost of the basic means and the length of life of hydroelectr stations are higher than the corresponding figures for the thermal electric stations. In view of this Z. Chukhanov considers it necessary while comparing the cost indices of these two types of electrostations to account also for the loss caused to the national economy by the construction of hydroelectric stations.

It is impossible to agree with these statements. If we consider an electric station in natura, as a thing, it is quite clear that all its elements are working at full capacity, that they all in equal measure are necessary for the production of electricity. Even if a secondary portion of such a complex organism as a power station is out of order, the electric station cannot function smoothly. Thus, though annually only a small part of the cost of the electric station is transferred to the annual cost of production, actually the whole station, in all its parts, takes part in the production of power every year, every month, every hour.

Here is revealed a law of the difference between the form and the degree of participation of the basic funds of an electrostation in the creation of the consumed electric power value and the plant value. Generally speaking this difference increases constantly as the technique of production progresses; it is the result of the technical progress and the index of its level. If unnecessary expenditures are not permitted in the construction of this or that object and if that object is operating at full capacity, then, as a rule, the growth of that part of the object which is not transferred to the cost of the annual product, not only does not cause a loss of national income, but, on the contrary, serves as one of the indices of raising the technical level of production.

Diversion of means for capital construction is insolubly bound with the length of the construction period. The means are diverted only for the period of construction. The beginning of that period is the start of construction of this or that object; its last point — the delivery of that object for exploitation. The end of the construction is fixed in the act of delivery-acceptance and by an accounting entry so that the cost of the finished object is transferred from the account of capital construction to the account of basic activity of the enterprise. From this moment means spent on capital investment are transformed into the basic funds of the operating enterprise and this completes the period of diverting the means connected with the construction of a given object. In view of this the first idea of the total magnitude of the means diverted for the period of construction is the difference between the total amount of capital investments and that part of them which during a certain period was transformed into basic funds of the operating enterprise. We have here in view the magnitude of uncompleted construction in ferrous metallurgy. It is growing continuously and has now reached an excessive size. In 1946 the volume of incompleted construction amounted to three billion rubles; in 1950 it amounted to 6.8 billion rubles; in 1955 to 9.1 billion rubles and in 1956 it exceeded ten billion rubles.

Let us consider the composition of uncompleted construction. At the beginning of 1955 on the enterprises of the former Ministry of Ferrous Metallurgy a balance of the uncompleted construction projects amounted to 9,083.8 million rubles. The sum of capital investments made during 1955 and the value of assets received from other organizations amounted to 8,289.2 million rubles. During the same year basic funds only to the amount of 8,194.3 million rubles were brought into operation and capital investments amounting to 58.5 million rubles were written off. Thus the balance of uncompleted construction by the end of 1955 amounted to 9,120.2 million rubles or 36.4 million rubles more than at the beginning of the year. Of this balance of uncompleted construction 238.3 million rubles (about three per cent of the total sum of the capital investments made during the year into ferrous metallurgy) is sunk into the objects put into conservation or the construction of which was discontinued. It is necessary to point out that the cost of projects delivered as ready for operation but for which an official act of transfer was not yet signed because of some incompleted work amounted to 451.7 million rubles or to five per cent of the total.

In our evaluation of the total amount of uncompleted construction we cannot consider it as a purely negative quantity. Some part of it is necessary for the construction of the following years. But in order to determine that part, we should expand and deepen our analysis of uncompleted construction.

The magnitude of uncompleted construction is determined by the size of capital investments which do not result in any products, the production of which will be undertaken by the object of capital investments. But this quantity does not reflect the length of the period during which a certain part of capital investments remains idle. In view of this we have to bring into the picture an additional index which characterizes not only the quantity, but also the time period of diverting means measured in million ruble-years.

The simplest case is that of simultaneously bringing into operation the whole object under construction, for example, of a road bridge. A more complex case is that of bringing into operation the construction object step by step, for example, an open hearth section which consists of steel furnaces built in a certain order or of a metallurgical plant, the construction of the numerous sections of which is not completed all at the same time. The volume of diverted means for the period of construction in the first case is determined either by summing up of the products of the annual capital investments multiplied by the corresponding number of years during which they would remain inactive, or through summing up capital investments increasing from year to year. When the construction object is brought into operation step by step, the total amount of the diverted means should be calculated by the same method and at the same time the value of the separate objects or their parts brought into operation during the period of construction should be considered. For this purpose there must be determined for each year of construction the difference between the cumulative total of capital investments and the cumulative value of the objects brought into exploitation, that is, of the basic funds, and then the differences obtained for each year of construction should be summed up.

In view of the fact that the cost of construction of various objects is not the same, when we compare amounts of diverted means we should relate them to the value of the basic funds of these objects. Using this method we calculated that in the whole ferrous metallurgy industry the amount of diverted means for capital investments totaled 11,343 million ruble-years during the Fourth Five Year Plan and 26,654 million ruble-years in the Fifth Five Year Plan. The coefficient of diversion of such means increased from 0.49 in the Fourth Five Year Plan to 0.74 in the Fifth Five Year Plan.

The absolute and relative quantities of diversion of means characterize in value form serious shortcomings implied in the too lengthy periods of construction. But even after the delivery of the objects of construction for use their productive capacity for some time is used only partially. This leads directly towards increasing the relative capital investments because the full quantity of capital invested is divided by a smaller amount of annual products than was foreseen in the plan of construction.

The length of the period of mastering the designed capacity and the degree of its achievement depend subtantially upon the progress of construction sections and of the plant complex, upon the order and the time of delivery for use of its separate parts. Because various sections are brought into exploitation at different times, the national income suffers large losses. For example, a delay in the assembly of a machine for the dressing of blooms is harming the blooming work of the Transcaucasian plant; the repair of the blooms is carried out by poor methods, requiring a large number of workers and large areas in the sections. In view of the fact that up until now the vertical elevator was not ready, the agglomerate is brought to the bunker gantry of the blast furnace section by railroad trains. In the sheet rolling mill cinders are removed by primitive methods (with birch whisk brooms) though the plans of the project foresee hydraulic removal of cinders. Because of the delay in bringing the blast furnace section into use the plant was compelled for five years to bring pig iron in pigs from the metallurgical plants of the Donbas and this cost 33.3 million rubles. Moreover this lowered the productivity of the open hearths because they had to use cold pig iron. In turn the construction of the open hearth section was lagging behind the assembly of the rolling mills. This resulted in additional expenditure on transportation to the tune of 19.3 million rubles as well as increased expenditure of fuel for the warming up of cold ingots in the pit furnace of the blooming mill. The fact that the construction of the gas equipment of the plant was not ready on time resulted in large losses of blast furnace gas and irrational use of coke oven gas for warming up the furnace. In the last two years losses amounted to a minimum of 15 million rubles. Thus, because of the violation of the interplant proportions general losses reached about 70 million rubles.

The length of the construction period of enterprises and the degree of mastering their capacities is of decisive influence on the magnitude of the relative capital investments. Yet, being identical in their results, these two basic factors determining the magnitude of relative capital investments are in essence different from each other in their economic nature. The long periods of construction characterize the length of the production cycle of the branch, the final product of which is this or that plant, section, or aggregate; the value of this product in delivery prices is measured — considering the length of the construction — in ruble-years of diverting means for construction. But this or that degree of mastering capacities and the length of the period of mastering show the degree of utilization of the already created basic funds and characterize the order of construction of its various parts and the work of an operating enterprise, that is, one already in operation. The difference between these two factors is also apparent in the fact that the results of their action is not the same depending upon whether it is construction of a new enterprise or reconstruction of a plant or section already in operation.

Without doubt the process of mastering new capacities proceeds more rapidly at an expanded or reconstructed enterprise which has the necessary skilled personnel and a well-adjusted general plant establishment. As to the size of the means diverted for the construction period in case of reconstruction and expansion it is sometimes larger than in case of construction of new plants. When the task is limited to relatively small reconstruction measures, it is possible to carry them out on the basic production area without bringing substantial changes in the general plant or general section establishment. In such a case production reserves of the subsidiary sections are mobilized which previously were not fully utilized. But if we begin a radical reconstruction or expansion of the functioning section or plant, bottlenecks in the general plant establishment which serves the basic production are immediately discovered and this makes necessary large capital investments in the sections which are subsidiary to the rest or in the general plant establishment serving all sections.

In fact, expansion and reconstruction of a functioning section — and the more so of the whole plant — requires investments not only into the part which is being expanded. For example, according to the plan of expansion and reproduction of the Magnitogorsk metallurgical combinate, the total sum of investments at existing prices is about 20 billion rubles, including the cost of work carried out by January 1, 1956, amounting to 9.5 billion rubles and the work to be done (carried-over sums of investments) to the amount of 10.5 billion rubles. Per ton increase of steel capacity the relative capital investment for the work carried out was planned at 1,460 rubles and for carried over sums — 2,330 rubles. Such an increase in the relative capital investments is brought about by the necessity of directing a substantial part of additional investments into the functioning sections and establishments in order to bring them up to the level of the best ones. Out of the ten large metallurgical plants which underwent a radical reconstruction and expansion in the post-war years, in seven plants the part of the capital investments into the basic production sections was sharply reduced and the part of the capital investments into the sections which are subsidiary to the rest and into the general plant establishment servicing all sections correspondingly increased.

Part of Capital Investments in the Basic Production Sections of a Number of Metallurgical Plants (%)

	Magnitogorsk	Kuznetsk	Novo-Tagilsk	Makeyevsk
4th five-year plan	37	55	58	55
5th five-year plan	32	50	47	37

	Azov steel	Zaporozh steel	Novo-Lipetsk
4th five-year plan	61	45	23
5th five-year plan	56	36	15

The reduction in the post-war period of the part of capital investments directed into the basic production sections of the expanded or reconstructed plants was accompanied by the growth of the part of investments going into the basic production sections of the plants the construction of which began during the post-war period.

In the table below are included data for the following metallurgical plants: Kuznetsk, Magnitogorsk, Novo-Tagilsk, Chelyabinsk, Novotrubnyi, Orsk-Khalilov, Cherepovets, Novo-Lipetsk, Makeyevsk, Voroshilov, Azovsteel, Zaporozh steel, Krivoi Rog, Bakinsk and Transcaucasian. The part of these plants in the total capital investments in the plants of the ferrous metallurgy industry reached 60% during the Fourth and Fifth Five Year Plans.

Thus the part of the capital investments in the basic pro-

Capital Investments in the Sections and Subsidiary Establishments of Fifteen Metallurgical Plants (%)

	Investments in basic metallurgical sections		Investments in sections and economies of a subsidiary and of general service character	
	4th	5th	4th	5th
	Five-year plans		Five-year plans	
Plants whose construction started during the post-war years	27	43	73	57
Plants restored, being completed, expanded or undergoing radical reconstruction	44	39	56	61

duction sections of the plants of the last group not only was reduced — in the Fifth Five Year Plan it was a relatively smaller amount than in the new plants of the post-war period. This — at first glance — strange situation is explained by the fact that the reconstruction and expansion of the basic metallurgical production at the functioning plants quite normally brought about relative lagging of the subsidiary sections and of the general plant establishment. For liquidation of this disproportion it was necessary to invest relatively larger means than into the creation of the subsidiary economy at the new plants.

During the Fourth and Fifth Five Year Plans the absolute amount of capital investments per ton of steel production increase was nevertheless substantially higher in the new plants, the construction of which started in the post-war years, than at the expanded or reconstructed plants.

Relative Capital Investments in Groups of Metallurgical Plants (in rubles per ton increase in steel production)

	Fourth Five Year Plan	Fifth Five Year Plan
plants whose construction began during or after the war	3,157	2,375
plants whose construction began in the pre-war five year plans	1,034	1,163
old plants undergoing radical reconstruction and expansion	793	804

As may be seen from the above table, relative capital investments for the new plants were reduced by 782 rubles.

The comparatively high level of the relative capital investments into the new post-war plants was the result chiefly of the long period of construction. As was noted, metallurgical plants whose construction started before the war were completed quicker than the plants whose construction started in the post-war period. As a result of this the relative capital investments for Kuznetsk, Magnitogorsk, Zaporozhsteel, Dneprospecial steel and other plants amounted to 1,268 rubles in the Second Five Year Plan and were from 2 to 2.5 times lower than during the operation of the Fourth and Fifth Five Year Plans (correspondingly 3,157 and 2,375 rubles). It is evident that it is impossible to establish a scientific law that new construction inevitably is connected with such high relative capital investments as was observed during the post-war period. Relative capital investments at the Western Siberian metallurgical plant, now under construction, according to the plan of construction, are lower than the relative capital investments in two expanded plants (where construction is being completed): by comparison with the plan of construction of the second portion of Azovsteel by 18% less and with the Novo-Lipetsk plant — by 12% less. The same tendency becomes apparent if we compare the data of the construction plan of the new Karaganda metallurgical plant with the corresponding indices of the expansion plan of the Zaporozhsteel plant.

The construction of the basic metallurgical sections at the new plants do not always result in the increase of the relative capital investments. Per ton of pig iron in the plans of construction of the blast furnaces at the two new plants — Western Siberian and Karaganda — the relative investments were determined correspondingly at 96 and 93 rubles; at sections of the Zaporozhsteel plant now under expansion — 105 rubles; at sections of the Dzerzhinsk plant, now in operation, at 161 rubles. Relative capital investments into a slab mill of the Magnitogorsk plant, now under expansion (62 rubles), are higher than the relative investments into the new Karaganda plant (44 rubles). In spite of this, relative capital investments in new plants in the post-war period were sharply reduced compared with the pre-war period. During the operation of the First Five Year Plan 54% of the capital investments in all metallurgical plants were directed into the construction of new plants; during the operation of the Second Five Year Plan — 66%, during the Fourth Five Year Plan only 15% and during the Fifth — 26%. Though the total sum of investments in the ferrous metallurgy plants was rapidly growing, the absolute amount of investments in the new plants went down from 6.4 billion rubles during the second plan to 2.1 billion rubles during the fourth and to five billion rubles during the fifth. During the Fourth Five Year Plan the necessity of rapid restoration of the plants of the south to a considerable degree limited the possibilities of constructing new plants; in the fifth plan, when the destroyed plants were basically restored, this circumstance did not play any important part. Such a distribution of means between the new plants and expanded or reconstructed plants was determined by the plans of capital investment. Shortcomings in the work of construction-assembling organizations could not seriously influence this distribution: approximately 80% of the Fifth Five Year Plan of construction-assembling work on the new, expanded, and reconstructed objects was carried out.

It is necessary to emphasize that the relatively small size of capital investments in the new plants whose construction started in the post-war years, to a certain degree brought about a dispersion of means to be invested in a number of new plants under construction and this slowed the tempo of construction.

With a rapid tempo of construction and by bringing the new plants into operation the amount of diverted capital investments will be reduced to a minimum. The new plants will be able to compete with the reconstructed and expanded plants and sections in respect to relative capital investments not only at the designing stage, but also in the actually realized level of relative capital investments. In view of this it is hardly advisable to reduce substantially the part of capital investments directed into the construction of new metallurgical plants.

An analysis of the change in the magnitude of the relative capital investments is an important part of the analysis of a wider problem: the effectiveness of capital investments. Investment directed toward the creation of the basic funds of an enterprise is only one kind of expenditure necessary for the production of certain products. Because of that the magnitude of the relative capital investments cannot serve as a definitive value index of the effectiveness of capital investments. Such a definitive index is the cost of production — its total amount and its structure. This is confirmed by the changes of the above-mentioned value indices under the impact of the growth of the concentration of production as one of the basic tendencies of the process of raising the technical level of production.

An increase in the scale of production first of all is reflected in the cost of reduction: it is decreasing as concentration is increasing. The same regularity is clearly operating in the changes of the cost per ton. In respect to relative capital investments the general tendency of the reduction of expenditures with the rising technical level of production, as measured by the degree of concentration, is distorted. Thus in the investigation of the general problem of effectiveness of capital investments one should not limit oneself to the study of one — though important but still one-sided — index, namely relative capital investments. Substantial capital investments are still not infrequently directed into the plants with relatively high costs of production.

Lowering the level of average costs is basic, characteristic for the socialist form of reduction of labor expenditure socially necessary for the production of the aggregate product. In view of this it is hardly possible to recognize as sufficiently justifiable the direction of about two-thirds of all capital investments into metallurgical plants with relatively high steel costs.

In planning capital investments for ferrous metallurgy plants it is necessary to concentrate the basic portion on the construction of those objects which, when brought into operation, ensure the maximum satisfaction of the needs of the national economy in ferrous metals and a substantial lowering of the average cost of products, having taken into consideration the cost of transportation to the place of consumption. In a number of cases this could be achieved with comparatively small relative capital investments in the metallurgical plants now under construction. Thus, the calculation of the most important cost indices and first of all of the cost of production of the new enterprises to be brought into operation is as necessary in planning capital investments as it is necessary in the economic evaluation of the several variants of the different technical levels of production for the products envisaged in the plan.

Grouping of Plants by the Average Production of Steel per Plant in the Fifth Five Year Plan (in thousand tons)

	Production of steel						
	Up to 50	50.1-100	100.1-200	200.1-500	500.1-1,000	1,000.1-2,000	More than 2,000
Relative capital investments in rubles	17,500	972	526	1,152	1,049	918	706
Cost of one ton of steel in rubles	557	510	526	472	459	419	329
Including the cost of reduction per ton in rubles	242	199	194	163	128	113	76

Distribution of Capital Investments among Plants with Various Costs of Carbon Steel

	Five Year Plans					
	Fourth		Fifth		Total Fourth and Fifth	
	Million Rubles	%	Million Rubles	%	Million Rubles	%
Cost below the average for the branch	2,731	32	4,733	35	7,464	34
Cost above the average for the branch up to 25%	4,295	50	6,020	44	10,315	46
Cost above the average for the branch by 26-50%	846	10	1,734	13	2,580	12
Cost above the average for the branch from 51% up	629	8	1,058	8	1,687	8
Total	8,501	100	13,545	100	22,046	100

*N. Constantinescu:**

Socialist Industrialization: the Basis for a Steady Growth of the Rumanian Economy

The Rumanian people, under the guidance of its Workers' Party and people's government in the shortest historical period achieved great successes in building the bases of socialism, transforming Rumania into a developed industrial-agrarian state.

The old bourgois-landlord Rumania was economically a backward country with poorly developed industry and extensive agriculture. The standard of living of the laboring masses was extremely low. The country was a source of cheap raw materials and a market for the industrial products of the large capitalist states — England, France, Germany and the United States.

The economic backwardness of bourgois-landlord Rumania was reflected in the structure of its national economy: in 1937 manufacturing industries and the output of minerals accounted for only 33.7% of the national income, while the part of agriculture and forestry accounted for 54.9%.

The structure of the country's industry did not correspond to its potentialities. Production of means of production was not well developed: in 1938 it made 45.5% of the whole industrial production. Food industry in 1938 contributed 32.4% of the gross industrial production. As to the machine building and metal manufacturing industries, they contributed only 10.2% to the total volume of industrial production.

Though bourgois-landlord Rumania was predominantly an agrarian country, it produced no tractors; having great riches of petroleum, it produced no equipment for the petroleum industry. The chemical industry was poorly developed, though the country has tremendous reserves of various valuable chemical raw materials.

The level of agricultural production was extremely low. The data of the 1930 census show that about 50% of peasant households had no plows and 37% had no draft animals. If we take the 1939 value of machines and implements in Rumania per ha. as 100 it was more than 200 in Bulgaria, more than 300 in Poland, 1,500 in Germany and 4,200 in Switzerland. In the same year Rumania produced per ha. 860 kg. of wheat, while Bulgaria produced 1,320 kg., Poland 1,440 kg., Germany 2,070 and Switzerland 2,250 kg.

The Second World War resulted in tremendous damages to Rumania's national economy.

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The liberation of Rumania by the renowned Soviet Army and the overthrow of the military fascist dictatorship on August 23, 1944, as a result of an armed uprising organized and guided by the Communist Party of Rumania, opened a new page in the history of our country. The Rumanian people obtained a chance to carry out a profound revolutionary transformation which radically changed the political and economic foundation of our country.

In our opinion the process of people's revolution in Rumania may be divided into two mutually connected stages. At the first stage it had mainly an anti-feudal and anti-imperialist character. At this stage mainly the problems of the bourgois-democratic revolution were decided. Though during the first months after the overthrow of the military fascist dictatorship the bourgeoisie and landlords continued to play an important part in the government and state apparatus, neverthess the political positions of the exploiting classes were decisively impaired and favorable conditions were created for the establishment of the people's democratic regime in the country on March 6, 1945. At this stage of the revolution the people's democratic regime was a form of the revolutionary-democratic dictatorship of the proletariat and peasantry in which the leading role belonged to the proletariat. A gradual process of establishing a proletarian dictatorship was going on.

Among the most important victories of our people gained under the leadership of Rumania's Communist Party at the first stage of the revolution the following should be noted: carrying out agrarian reform of 1945 which brought about the destruction of the feudal survivals in the villages and the liquidation of the landlords as a class; carrying out democratic reforms in the state and economic apparatus; the rout of the political forces of the bourgeoisie and landlords; the removal of Rumania from the imperialist system and ensuring its independence from the imperialist forces.

In the center of attention of the Rumanian Communist Party stood the tasks of restoration and development of the national economy which were widely discussed at the national conference of the CPR in October, 1945. This was the first conference summoned by the Party on the territory of its own country under legal conditions: before that for 20 years the CPR was deep underground. Outlining the road to restoring the economy the national conference of the Communist Party underlined that Rumania's economic development should be in the general direction of industrialization and electrification. In a resolution adopted by the conference it was stated that "the progress of our country is directly and immediately connected with the progress of industrialization of the country and the very independence of our country depends to a considerable degree on its production capacity."*

Advancing the task of Rumania's industrialization, the CPR was guided by the thesis of the Marxist-Leninist theory concerning the preferential development of heavy industry and by the experience of carrying out socialist industrialization in the USSR. The Communist Party emphasized that it had in view not just development of industry, but only that form which would ensure the preferential growth of production of the means of production as compared with consumption goods.

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* Rumanian People's Republic

* Rezolutia Conferintei nationale a Partidului Comunist Romin, ed. PCR Bucuresti, 1945, p. 13.

In the report of CC of the CPR it was pointed out that only on the basis of the growth of heavy industry is it possible successfully to master Rumania's natural riches, to start the development of the existing branches of industry and to create new ones, to ensure the improvement of all types of transportation, to supply agriculture with machinery, implements and chemical fertilizers, and the continuous rise of the people's standards of living.

After the fall of the fascist dictatorship the main economic positions in the economy of the country to a large degree still remained in the hands of those classes which had possessed them before the uprising. This made much more difficult the realization of the program of Rumania's economic reconstruction prepared by the Party. The capitalists, the remnants of the landlord class, and the reactionary circles inside and outside the country wished to use the economic disorder and sabotage as their weapons in the struggle against the democratic forces. In this struggle foreign capital, which still held important positions in Rumania's economy, took an active part.

Under these conditions the Communist Party of Rumania mobilized the working class and all laboring masses for the struggle with sabotage, for the restoration of the economy. Measures were carried out for expanding and strengthening control by the revolutionary-democratic dictatorship of the proletariat and peasantry over various branches of the capitalist economy. In particular workers' control over industrial production through the organization of so-called industrial management was established; nationalization of Rumania's National Bank took place; a monetary reform (in 1947) was carried out and a law forbidding the purchase of land by kulaks was passed.

The firm policy of the Communist Party, defending the vital interests of the laboring masses, was a source of growth of the Party's authority among the masses. At the end of 1947 the last representatives of the bourgeoisie were removed from the personnel of the government. On December 30, 1947, the monarchy was overthrown and the Rumanian People's Republic was proclaimed.

After full conquest of power by the working class the Marxist-Leninist Party was able fully to approach the solution of the problems of the revolution's second stage, the stage of socialist transformation which continues up to now. With the second stage of people's revolution, when the process of establishing the dictatorship of the proletariat was completed, the people's democratic state became a form of dictatorship of the proletariat the supreme principle of which was an alliance of the working class with the laboring peasantry. The full conquest of power by the working class under the guidance of the Communist Party created the necessary conditions for carrying out the socialist transformation of the country.

An especially important part in the solution of the problems of the socialist revolution was played by the First Congress of Unification of Rumania's Workers' Party (February 1948), inheritor of the fighting traditions of the Communist Party of Rumania. At this Congress the Workers' Party made a deep analysis of the economic and political situation in Rumania and outlined the program of further development of the country along the road to socialism. The RWP pointed out that the historical mission of the people's democratic state consists in liquidating our economic backwardness, transforming Rumania into an advanced industrial-agrarian country, and ensuring high standards of living for the working people.

On June 11, 1948, the people's democratic state nationalized the largest industrial enterprises, means of transport, banks and insurance corporations; they all became socialist property belonging to the whole people. Commanding positions in the economy passed into the hands of the working class.

The nationalization of the basic means of production meant liquidation of the class of the financial and industrial bourgeoisie. At the same time it brought an end to the power of foreign capital which for almost a hundred years held the most important positions in our country. Nationalization created a powerful socialist sector in the economy, resulted in the emergence and development of socialist economic relations, relations of brotherly cooperation and mutual help of the laboring masses freed from exploitation. Nationalization prepared the conditions for the planned management of the economy and at the same time became a decisive condition for the transition to the socialist industrialization of the country.

The general line of the RWP, leading to the building of the economic basis of socialism in Rumania, found reflection in the annual state plans of the national economy for 1949 and 1950, in a ten-year plan of electrification of the country (1951-1960), in the first five-year plan of development of the national economy for 1951-1955 and the directives concerning the second five-year plan of national economy for 1956-1960.

The Rumanian people has obtained decisive successes in the creation and development of the socialist economy. Already by the end of 1955 the socialist sector won complete domination in industry. Its part in transport was more than 90%. The socialist sector fully embraced the banking-financial and insurance system of the country, as well as foreign trade, and was responsible for more than 80% of the domestic trade. In agriculture the socialist sector in the same year embraced 26.5% of the sown area or 35.2% of the agricultural area of the country. By the end of 1957 the socialist sector in agriculture embraced 48% of the whole agricultural area.

In order to ensure high tempos of growth of the national economy the people's democratic state made large capital investments into various branches of the economy and, first of all, into industry. In 1956 the volume of capital investments into industry reached 300% of the level of 1950. During the period of the first five-year plan two-thirds of all capital investments were directed into the petroleum and power industry, ferrous metallurgy, machine building and the chemical industry. During 1948-1955 there were constructed in Rumania more than 100 new large industrial plants and a large number of enterprises of local importance. Moreover 200 industrial enterprises were reconstructed, expanded, and equipped with modern machinery.

Through large capital investments, improvement in utilization of production capacities and growth of labor productivity industrial production in the RPR is growing at rapid tempos.

Index of the Growth of Industrial Production*

1938	1948	1950	1955	1956
100	85	147	299	330

In correspondence with the tasks of socialist industrialization the industry of the RPR is being developed through the preferential growth of production of the means of production. If we take the level of 1938 production as 100, the growth of industrial production of groups A and B would appear as follows:[*]

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* "Anuarul Statistic al RPR 1957," Bucuresti, 1957, p. 79.

	1948	1950	1955	1956
Group A	92	167	363	411
Group B	79	129	240	257

During the years of socialist construction the structure of industrial production has considerably changed. Under capitalism group B was responsible for a larger part of the industrial production, but in people's Rumania each year the relative importance of the group A is growing. The relations between these two groups were changing from year to year as follows:[†]

	1938	1948	1950	1955	1956
Group A	45.5	49.4	53.0	55.8	57.6
Group B	54.5	50.6	47.0	44.2	42.4

In accordance with the policy of preferential development of production of the means of production carried out by the RWP as the basis of expanded socialist reproduction, through the years of socialist industrialization those branches of industry were developed especially rapidly which are basic for the creation of the material-technical basis of socialism — mining, power, ferrous metallurgy, machine building, the chemical industry, and the building materials industry.

In the old Rumania, as is known, the part of metallurgy and machine building in the total industrial production was insignificant. That is why creation of metallurgy and machine building which would be capable of ensuring the reconstruction and equipping of various branches of the national economy with modern technique was one of the first and at the same time the most difficult tasks of socialist construction.

In order to increase ferrous metal capacity two modern, fully mechanized and partially automatized blast furnaces were built and brought into operation at Khunedoar. Open hearths at Khunedoar, Resita, Kympiya-Turzei and a coke-chemical plant and agglomeration factory at Khunedoar, and other installations were constructed. At present at Khunedoar construction of a steel plant is being completed which will produce more steel products than were produced in the whole bourgeois-landlord Rumania. One of Europe's largest tube-rolling mills started operations in Roman.

A rapid increase of productive capacities in ferrous metallurgy and an uninterrupted improvement of equipment utilization indices ensured a significant growth of metal production in people's Rumania. Thus the production of pig iron increased from 132,700 tons in 1938 to 582,900 tons in 1956; production of steel increased correspondingly from 283,900 tons to 779,100 tons. The output of iron ore in 1956 was five times as large as in 1938.

Machine building indistry is developing successfully. If we take the volume of machine building and metal manufacturing in 1938 as 100, in 1948 it was 87, in 1955 — 496 and in 1956 — 605.

During the years of socialist industrialization the country for the first time mastered the production of petroleum, mining, power equipment, trucks, equipment for cement, textiles, food processing, and railroad equipment, and created new branches of the chemical industry, etc.

Under the bourgeois-landlord regime Rumania's industry developed in fact on the basis of imported machinery and thus in respect to machinery and equipment it was fully or almost fully dependent upon foreign countries. In people's Rumania, under conditions of socialist industrialization, with preferential growth of production of the means of production, especially of machine building, the national industry began to satisfy a substantial portion of the demand of the various branches of the national economy in equipment, machines, and installations with its own production. While in 1950 50.7% of the needs of the country in machines and equipment were met with domestic production, in 1956 76.2% were met in this way.

An important part of the heavy industry of the country is the petroleum industry. In bourgeois-landlord Rumania, as a result of the plundering policy in operating the oil fields and the poor development of geological-surveying work, the output of crude petroleum, having reached a maximum of 8,703,497 tons in 1936, began to fall catastrophically after that. After liberation of the country the Rumanian and foreign bourgeoisie with peculiar insistence spoke of the "sunset of the petroleum industry," of the "exhaustion of petroleum reserves," etc.

The development of Rumania's petroleum industry under conditions of socialist construction fully refuted all these theories. Through enormous technical-economic help of the Soviet Union oil wells were again put into operation, petroleum refineries were restored or modernized, new oil wells and new petroleum refineries were opened, and modern technical processes were applied to petroleum output and refining. Now an installation for catalytic cracking is undergoing testing, the first installation of that kind in our country. Intensive work of surveying new oil fields in Moldava, Muntenia, Oltenia and Transylvania is going on. As a result of all this work the production of oil in Rumania not only reached the record figure of the bourgeois-landlord regime in Rumania, but considerably exceeded it. In 1955 production amounted to 10,555,491 tons: in 1955 — to 10,920,467 tons, or almost two million tons more than the maximal production of petroleum in the old Rumania. Production of gasoline greatly increased; in 1938 it amounted to 1,528,582 tons; in 1956 it reached 2,749,625 tons.

The characteristic feature of the petroleum industry in people's Rumania is its development on the basis of modern equipment manufactured in our country. Socialist Rumania is the only small country in the world which has its own developed petroleum production and an industry which manufactures modern petroleum equipment. In our plants there was organized serial production of well-drilling equipment, pumps for great depths, gas and petroleum separators, columns for rectification and fractionating of petroleum, installations for distillation of gasoline, cracking, etc. The other characteristic feature of Rumania's present petroleum industry is that all the petroleum produced in the country is now processed in the country itself.

In the process of carrying out Rumania's socialist industrialization the Party and the government pay great attention to the creation and development of industrial production in such formerly backward regions as Moldava, Oltenia, Dobrudzha, north-western Transylvania, and the Hungarian autonomous region, and this contributes to a better territorial distribution of the productive forces. During the years of the first five-year plan in these regions larger capital investments into the economy were made than in other regions of the country. There were built here nine power stations,

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[*] Ibid.

[†] Ibid., p. 80.

52 plants of heavy industry (including 24 plants of national importance), 19 mines and 33 plants of the light and food industries. Construction began of a powerful hydroelectric central station at Bikaza, of a thermal central electric station at Borzesht, and of a rolling mill at Roman. Industrial production in the regions formerly backward is growing at a more rapid tempo than the tempo for the country as a whole. For example, in 1956 industrial production for the whole country amounted to 239% of the level of 1950; but in Konstants region it reached 309%, in Yassy region 323% and in the Hungarian autonomous region — 309%.

The successful development of our industry during the years of the people's republic may be seen also from the growth of per capita production of the most important industrial products. Per capita production of pig iron increased from 8.5 kg. in 1938 to 33.2 kg. in 1956; steel — from 18.2 kg. to 44.3 kg.; coal from 181.2 kg. to 368.2 kg.; power from 72.4 to 280.4 kwh.; cement from 32.7 kg. to 124.3 kg.; cotton textiles from 6.7 sq. mt. to 10.9, etc.

Industry became the leading branch of our national economy. In 1956 the part of industry (together with construction) made 52% of the national income of Rumania, while the part of agriculture (plus forestry) was only 30%. The leading part of industry in the national economy of the RPR is also confirmed by the fact that heavy industry is the basis of the technological reconstruction of all branches of the economy, a key to a socialist transformation of agriculture on the basis of modern technique.

In our country 16 industrial enterprises producing 48 new types of agricultural machines were built. In 1956 alone the industry produced 4,202 tractors. The country produces tractor plowshares with colters, disk plows, tractor grain seeders, corn and grain combines, threshing machines, etc.

The application of agriculture of modern technique made it possible to obtain considerable successes in the mechanization of agricultural processes.

Level of Mechanization of the Basic Agricultural Processes in 1956 (%)

	state farms	collective farms
plowing	95.8	82.4
sowing (spring)	79.9	37.0
cultivation	97.9	77.4
opening of fallow	96.6	89.4
harvesting of grain with combines and tractor binders	79.4	52.8

Extensive electrification work of Rumanian villages is being carried out. During the whole existence of the bourgeois-landlord regime only 443 villages were electrified; in 1945-1950 235 villages were electrified, in 1951-1955 — 1,015 villages.

During the years of socialist construction in Rumania a chemical fertilizer industry was established and the production of chemical poisons for the control of agricultural pests was organized.

The transformation of Rumania from an economically backward into an industrial-agrarian country brought about deep changes in the structure of foreign trade. Under the bourgeois-landlord regime the main products of export were agricultural and petroleum (chiefly crude petroleum) and those of import — manufactured goods. For example, in 1937 manufactured goods made up 77% of the whole volume of imports, while the part of the raw materials and semi-manufactured goods was 17.5%. For the same year crude petroleum and petroleum products made 40% of exports, grain — 32.7%, seeds and beans 5.5%, timber — 9%, livestock — 4.2%.

Now the import of raw materials and the necessary semi-manufactured goods and the export of manufactured goods have increased. On the eve of the Second World War Rumania imported almost all its prime movers, machines, and industrial equipment. Now our newly created machine building industry, while covering a larger part of the domestic demand in various machine tools, machines, prime movers and installations, is at the same time able to export a substantial portion of its production abroad. For example, certain types of machine tools, tractors, tractors with trailers, petroleum and power equipment, installations for the production of cement and many other products of our machine building industry are exported to a number of European and Asian countries.

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In order to use modern machines, installations, and other industrial equipment most effectively, we need highly trained technical personnel. That is why the training of skilled workers, technicians, and engineers is in the center of the Party's and government's attention.

The number of students in the general educational system of the country reached 1,859,270 in the 1956/57 school year compared with 1,604,481 in the 1938/39 school year; for secondary technical schools the corresponding figures are 29,236 and 14,476; for vocational training schools — 98,005 and 39,250.

Special attention is paid by the people's state to the development of higher education. In the 1938/39 school year in Rumania there were 33 departments of the universities and colleges with 26,489 students; in 1956/57 there were 112 departments with 81,206 students. Universities and colleges played an especially important part in training personnel for the national economy.

The role of scientific and research activity of Rumanian scientists is very great in the development of our socialist industry. In people's Rumania for the first time in the history of the country science was placed in the service of production. By the end of 1956 there were 69 scientific-researc institutes emplying 6,330 scientific workers.

One of the most important factors of the rapid development of our industry is socialist competition aimed at the increase of labor productivity and the improvement of production on the basis of maximal creative activity of the laboring masses. Socialist competition in our country, organized by the labor unions under the guidance of the Party, has a mass character and embraces hundreds of thousands of laboring people.

The successes achieved by the Rumanian people in building socialism and in carrying out socialist industrialization serve as a basis for ensuring fuller and fuller satisfaction of the growing material and cultural needs of the population.

The national income of the country is growing all the time In 1955 it was more than 2.5 times as large as the national income of 1948 and approximately twice as large as the national income of 1938. It is expected that the national income in 1960 will be 50% above the level of the national income of 1955. The socialist sector in 1955 contributed more than 70% of the national income. As was mentioned, now more than half of the national income is created in industry (together with construction). This shows how great a part socialist industrialization plays in raising the material and cultural standards of living of our people.

Almost all the national income of people's Rumania (with the exception of a very small part of it which is still appropriated by kulaks, merchants and other private capitalist elements) is used for the satisfaction of the needs of the laboring masses as well as for the development of the socialist national economy and socialist culture. During the years of the first five-year plan the national income was distributed in the following way: 3/4 of it went into the fund of consumption, for the satisfaction of the material and cultural needs of the laboring people of the urban and rural population and 1/4 of it went into the accumulation fund with the purpose of ensuring the growth of industrial production, agriculture, transport, and communications, trade, and culture.

The growth of welfare of the laboring masses of the Rumanian People's Republic is clearly seen from the following data on per capita consumption of goods in the pre-war period and at present. For example, in 1938 the per capita consumption of sugar amounted to 5.5 kg., of fats 3.4 kg., of meat 19 kg. and was the lowest in Europe. In 1956 per capita consumption of meat and sugar was doubled (as compared with 1938) and consumption of fats increased 3 1/2 times.

Socialist industrialization greatly influenced the changes in the composition of the country's population and its distribution according to branches of the national economy. Thus, in 1930 7.2% of the economically active population of the country was occupied in industry; in 1955 — 13.1%. If we add to this the population occupied in construction (4.4%), the percentage would reach 17.5. All this shows how rapid is the growth of the working class in Rumania which has now about two million people in its ranks; it shows an increase of its part in the total number of occupied persons and the strengthening of the leading role of the working class in society.

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The existence of a powerful socialist camp with the Soviet Union at its head, extremely rich natural resources, industrial power, and the technical experience which countries of this camp possess makes easier the realization of socialist industrialization in our country. Through collaboration with socialist states people's Rumania, just as other people's democracies, is wise to develop not all branches of heavy industry, but first of all those branches of industry and those industries for which it has the most favorable natural and economic conditions. In carrying out socialist industrialization of the country the Party and the government consider the possibility of importing a number of industrial products from other socialist countries, the production of which in Rumania is not economically justified. At the same time the development of some branches of Rumanian industry, as for example, machine building, electrotechnical, petroleum refining, chemical, the cement industry and a number of light and food industries is carried out in such a way that the production is able to satisfy not only domestic needs, but also export needs. In other words, the development of the RPR's industry and its whole economy is carried out on the basis of the broad international socialist division of labor, on the basis of brotherly cooperation and economic mutual help of the socialist countries.

Unlike the capitalist international division of labor under which bourgeois-landlord Rumania played the part of an agrarian appendix to the developed capitalist countries, the socialist international division of labor helps the most rational and effective development of the whole national economy of the RPR under which the possibilities and needs of Rumania itself and of other socialist countries are considered. Enormous help to the socialist industrialization of Rumania is rendered by the Soviet Union. For example, the USSR delivered to Rumania full equipment for 56 enterprises of the ferrous metallurgy, machine building, chemical, and other branches of industry. In order to save our country expenditures on the development of output and processing of poor iron ores, the USSR delivers to the RPR large quantities of ore with high iron content. This made it possible to free substantial means and direct them for the development of other branches of the national economy.

The Soviet Union rendered great technical help to Rumania in the construction of various enterprises and the organization of the production of new types of machines and industrial equipment; it supplied us with various technical documentation; Soviet specialists helped in designing, constructing and setting in operation various economic projects, and in the training of skilled personnel for various branches of the economy. All this makes easier and expedites the process of arming the national economy of our country with modern technique. With the help of the USSR a center was created for scientific research in atomic physics with a reactor of 2,000 kw. and a cyclotron of 12.5 million electrovolts.

Beside collaboration with the Soviet Union and help rendered by it to Rumania an important part in the development of our industry is played by mutual help and close technical collaboration of the Rumanian People's Republic with other brotherly socialist countries. The tremendous role of the socialist international division of labor and brotherly collaboration with other countries of the socialist camp in the economic development of our country may also be seen from the fact that the external trade of Rumania with the USSR and countries of people's democracy makes up more than 70% of the total external trade of the country.

The Rumanian People's Republic established formal economic ties with many countries of the world on the basis of equality and mutual benefit. It is enough to point out that the Rumanian People's Republic maintains trade relations with 70 states.

The great successes in building the basis of socialism, especially in carrying out socialist industrialization, obtained by our laboring masses under the guidance of the Rumanian Workers' Party and with the support of all countries of the socialist camp, serve as a reliable base for a further powerful development of our national economy and the continuous improvement in the welfare of the laboring masses of people's Rumania.

P. Volobuev:

Peculiarities of the Degeneration of Monopoly Capitalism in Russia

In his investigation of the laws of capitalist development at its highest, imperialism, V. I. Lenin showed that capitalism, having reached its most mature and developed form, became parasitic, decaying, dying capitalism. Lenin showed the main source, the main cause of the decay of capitalism — monopoly — as the deepest economic base of imperialism. "That imperialism is parasitic and decaying capitalism," he wrote, "appears first of all in the tendency to decay which characterizes every monopoly where the means of production are privately owned."*

Under conditions of monopolist domination the urge for limitless expansion of production, characteristic of capitalism, so far as its purpose is obtaining maximum surplus value — sharply weakens. Under imperialism the development of social production is subordinated to the aim of ensuring monopolistic high profits which is the prime mover of monopoly capitalism. But the highest profits may be ensured without further expansion of production; first of all they may be ensured on the basis of the dominance of the monopolies. Control over an enormous part of the production and distribution of goods on the domestic market, financial power, the monopolistic position of the sources of raw materials, exploitation of foreign countries through export of capital and foreign trade, subordination of the state and its resources give to the largest monopolies possibilities and means of obtaining profits which were unknown to the old capitalism. Because of that monopolies bring about the development of the productive forces only to the degree to which it ensures monopolistic high profits.

However, the decay of capitalism is not absolute, resulting in stagnation. The very character of the modern productive forces makes this impossible. Moreover, the decay is a direct result of capitalism because the growth of capitalism does not abolish, but on the contrary presupposes and prepares a progressive decay of capitalism. The mutual connection of the process of decay with the further growth of capitalism is one of the most important laws of the development of monopolistic capitalism.

Thus, imperialism represents an area of action of two opposite tendencies: a tendency to decay, necessitated by the domination of monopolies, and a tendency toward development of production and technique caused by competition and the pursuit of the highest possible profits. The interaction of these forces leads to a highly contradictory, uneven movement of capitalist production which carries within itself the possibilities of various convulsions. The whole course of development of capitalism at the imperialist stage shows that capitalism, as a social formation, passed the phase of growth and entered the phase of decline, of dying.

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The basic feature of imperialism and laws of its development, demonstrated by V. I. Lenin, were essential also for Russian imperialism in spite of the fact that it also had important features of its own. Monopolies embraced the key branches of Russian industry during the crisis of 1900-1903 and the depression that followed it. By the start of the pre-war industrial boom their domination spread to the production and distribution of the most important commodities. The number of monopolistic agreements of all kinds which had been reached — according to incomplete data — on the eve of the first Russian revolution was 30; by 1914 they numbered from 140 to 150. But it is not the number of monopolies which in the final account determines their power and place in the economy of the country. What is decisive is the part monopolized branches of industry play in the national economy and the degree of their dominance in a given branch.

In Russia, as in other capitalist countries, it was heavy industry which was monopolized to the largest degree. In the majority of the leading branches of heavy industry, as a rule, one or two monopolies were predominant. For example, "Prodamet" actually completely dominated the ferrous metallurgy of the country on the eve of the First World War. In the locomotive and car building branches there was in each only one syndicate the part of which in the total production varied from 95 to 100%.

It is now possible to consider as an established fact that in the degree of monopolization of most branches of industry Russia was behind only the United States and Germany and was ahead of England and France. The influence of the Russian monopolies in these branches was certainly not smaller and possibly larger than in all the above-mentioned countries.

Monopolies, leaning on the power of the banks, occupied a predominant position in the economy of the country. In terms of the level of concentration of banking Russia was not only not behind other countries, but even ahead of them. This strengthened the position of banking capital, tied in with the capital of industrial monopolies, as well as the domination of the monopolies.

One more factor should be mentioned, a factor which contributed to the appearance of the tendencies to decay of monopolistic capital in Russia. Under peculiarly characteristic conditions of Russia with its huge (for that time) state economy and the established practice of state intervention in economic life the transition to imperialism brought about an early appearance of state-monopolistic tendencies.

In addition to the above-mentioned causes in Russia, some specific factors which strengthened and accelerated the process of capitalist decay were operating. A tendency to decay, characteristic of monopolies, to a great degree was strengthened by the remnants of serfdom in the economy and the political regime of the country. V. I. Lenin on many occasions pointed out that the survivals of serfdom and first of all of landlord ownership of land and Tsarist autocracy were the greatest obstacle to any culture and any progress in our country. The most firm support and embodiment of all survivals of serfdom was the nobility — landlord landownership. V. I. Lenin wrote that it was exactly the most reactionary landlords “who with their medieval landownership...and their oppression condemn five-sixths of the population to poverty and the whole country to stagnation and decay.”* The domination of landlord landownership doomed tens of millions of peasants to bondage and poverty, perpetuated the backwardness of agriculture and in this way reduced the domestic market to a pitiful size. The problem of the market, one of the basic problems of Russian capitalism, became especially acute with its transition to imperialism and brought about specific forms of “overcoming” this narrowness of the market by the monopolies.

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* V. I. Lenin, "Works," Volume 23, p. 95.

The survivals of serfdom which caused exceptionally low workers' wages and a lack of political rights for the laboring masses in Russia were in the final account a source of that “Russian” excess profit (according to V. I. Lenin's expression) which, in essence, was monopolistic high profit of pre-monopolistic origin preserved under the domination of modern, monopoly capital. This peculiarly Russian excess profit also weakened the incentive to move forward.

The decay of monopoly capitalism in Russia strengthened its dependence upon foreign capitalism. First of all, foreign capital flowing into the country expedited the process of concentration in industry and the formation of monopolies. Foreign capitalists and bankers became initiators of the largest Russian monopolies (“Prodamet,” “Produgol,” etc.). As a result of this those elements in the economy which carried with them a tendency toward stagnation and decay were growing more rapidly. Secondly, foreign capital bled the country, diverting from it huge means in the form of profits and interest on loans. Third, constant financial and political support of the Tsarist autocracy by western imperialism delayed its inevitable downfall. One of the causes of the parasitism and decay of capitalism was the oppression and robbery by the monopolies and Tsarism of the peoples of the Russian colonial borderlands.

It is also necessary to have in view that the decay of monopolistic capitalism in Russia began and proceeded in an economically backward country where the level of development of the productive forces was relatively lower than in the capitalist countries of Europe and America. In connection with this it is enough to point out that Russian capitalism, unlike its western counterparts, at the time of its transformation into imperialism, had not yet solved the problem of industrialization of the country and the creation of its own technical base in industry. This was responsible not only for the original forms of decay of Russian capitalism, but also predetermined its destructive influence on the economic development of the country.

The decay of capitalism was especially clearly seen in an artificial retarding by the monopolies of the development of production, especially in the most monopolized heavy industry. Retarding the development of production was achieved through monopolistic agreements of the participants to establish firm quotas of production and distribution. These limits of production, characteristic of every monopolistic agreement, resulted in Russia in the establishment of a level of production which meant limiting the growth of production or even its outright reduction. The policy of limiting production was explained by the monopolists as being caused by the narrowness of the domestic market; this policy was a singular attempt on the part of the monopolists to “overcome” the chronic weakness of the domestic market. Through the limitation of production, the artificial creation of a shortage of goods and fixing on this basis the monopoly-high prices monopolists ensured for themselves maximum profits. This was an extremely predatory, plundering method which made it possible to extract enormous excess profits at the expense of the improverished market.

Monopolies carried out the limitation of production in many branches of industry. For example, one of the most powerful monopolies in Russia, the syndicate “Prodamet” fixed for each of its participants strictly definite quotas of production, as a rule low as compared with existing production capacities. Production of metal above this quota resulted in the payment of a high fine. “Prodamet” also tried to obtain from its members a direct reduction of production. For a cessation of production or its “temporary” suspension the syndicate paid its members large premiums. For example, during three years (from 1912 to 1914 inclusive) “Prodamet” paid out for the cessation of production 6.4 million rubles. “Meanwhile,” wrote one of the leaders of the Taganrog Metallurgical Society, “‘Prodamet’ quite uselessly stopped production at some plants of steel manufactured goods because the new orders, that is, the market demand, was exceeding the productive capacity of all metallurgical plants.”

The constant resistance of the “Prodamet” and of the banks connected with it to the construction of new metallurgical plants in the south of Russia had an especially negative influence on the development of ferrous metallurgy. As a result of this opposition from the beginning of the 20th century to the October Revolution not a single large metallurgical enterprise was built in the south of Russia though at the end of the 19th century almost the whole metallurgy of the south grew in some 10 to 12 years. In the same way as “Prodamet,” “Prodwagon” (marketing of railroad cars) and locomotive building syndicates were creating all kinds of obstacles in the way of constructing new locomotive and car building plants. Even during the first year of the war, when a shortage of rolling stock on the railroads became quite evident, the bosses of the “Prodwagon” were against building new car building plants, considering them superfluous. As to the “Produgol” (marketing of coal), its whole activity consisted in slowing down the output of coal in order to create strained conditions on the market and on this basis to raise prices. Even the public attorney of the Kharkov regional court, after a study of the “Produgol” records, came to a conclusion that that syndicate took systematic measures to limit production.* In their policy of restricting output, the petroleum monopolies probably went further than others. Unlike other monopoly groups they not only held off the growth of production, but even openly reduced it, lowering the level of output and of petroleum refining.

Agreements of the oil well owners at the beginning of the 20th century were directed at the reduction of output of crude petroleum and refining. Petroleum monopolies were reducing the drilling of new wells on purpose and tried to make as many oil wells idle as possible. It is characteristic that in 1913 the volume of drilling in Baku was almost one-third less than at the end of the 19th century. The processing of crude petroleum and the production of valuable petroleum products such as kerosene, gasoline, lubricant oils etc., were also reduced.

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* V. I. Lenin, “Works,” Vol. 19, p. 262.

* See “Krasnyi Arkhiv,” Vol. V(18), Moscow-Leningrad, 1926, p. 137.

A syndicate of sugar mills and refineries began its activities in 1903-4 with a reduction of the quotas for each mill by 20% in comparison with the preceding year. The reduction of production by other, smaller monopolies — cement, mirrors, matches, and other syndicates — was carried out no less "effectively."

Monopolies carried out the policy of restricting production most persistently when industry was on the upgrade in the postwar years. During that period the dominant monopolies utilized good business conditions for raising the prices and holding them at their monopoly-high level through preventing the growth of production and creating an artificial excess of demand over supply. In many branches of industry, especially in mining, with an increase in the general volume of production the desire of monopolies to slow down growth became stronger, because an expansion of production and a larger supply of products to the market was considered as a threat to the policy of monopoly prices.* For example, the "Produgol" in spite of the shortage of coal which became apparent already in the spring of 1911, decided that in 1912 the volume of marketed coal by its members would be equal to 90% of the quota (actually 91.3% of that quota was marketed, though 1912 was a year of acute coal shortage).†

The monopolistic policy of restricting production brought its results. The growth of production of the most important products in terms of tempo as well as absolutely was in sharp contradiction with the growing needs of the country. The gap between production and the demand for metals and fuel became especially great. According to the official data during the 1910-1913 period the national need for pig iron was increasing each year by 18%, while production was increasing by 14%.‡ During the same period the general consumption of coal increased, according to our calculations by 50%, while the output of coal increased by 44%.

The insufficient volume of production of pig iron, steel, coal, and petroleum brought about a great shortage of fuel and metal in 1911-1914 which was accompanied by a rapid rise of their prices. The shortage of fuel and metals artificially created by the monopolies was one of the ugly manifestations of the decay of capitalism and brought about a crisis of underproduction at the height of a business cycle and increasing ability of the domestic market to absorb products.

In Russia from the beginning of the 20th century the chronic operation of plants at less than full capacity in many branches of industry and especially in mining and in transport machine building began to be felt. And this work at less than full capacity took place not only during the period of depression, but also during the period of boom. The basic cause of this was a contradiction between the increase of production capacities in the 1890's and the low purchasing power of the population for the purchase of means of production and personal consumption. The growth of the purchasing power of the population was slowed down by the presence of survivals of serfdom in the economy and the predatory budget-financial policy of the Tsardom. The slowing down of this purchasing power was also brought about by the predatory policy of monopolistic prices.

The monopolists tried not to permit work at full available capacity. For example, the bosses of the "Produgol" declared that work at full capacity of the coal mines "is not possible because it is necessary to consider the need of the market determined ahead of time" (!),* which they considered insufficient. In the Donbas in 1903, on the eve of the formation of the "Produgol," according to the data of the coal owners themselves, only 73.5% of the capacity of the mines was used. In 1910, at the beginning of the pre-war industrial boom, only 64.9% of the capacity was utilized and at the height of the boom — 80%.† Thus member-enterprises of the "Produgol" did not utilize a great portion of their productive capacity. On the eve of the war, according to our calculations, one-third of the member-enterprises of that syndicate utilized only from 50 to 64% of their productive capacity. The policy of the "Prodamet" resulted in a similar situation in the metallurgical plants. In 1910 in the south of Russia 36 blast furnaces were operating while 17 stood idle. In 1913, at the height of an acute shortage of pig iron, seven blast furnaces remained idle. The productive capacity of all blast furnaces of Russia in 1914 amounted to no less than 6.5 million tons of pig iron. The following percentages of this capacity were utilized: in 1910 — 55, 1912 — 71, 1913 — 75. Steel producing sections of the plants also utilized only a part of their full capacity: in 1906 they utilized only 55% of it, in 1912 —78%.

The capacity of the petroleum industry was utilized even less. According to the "Report of the Caucasian Mining Administration" in Baku for 1913 less than half of the oil wells were in exploitation and out of 25 kerosene plants only nine were operating, or a little more than one-third.

Survival in the Urals of a "right of possession" which was an obstacle to the flow of new capital and the growth of capital investments, technical backwardness of many plants which made impossible their use, high profits of a handful of privileged owners as a result of semi-feudal methods of exploitation of the cheap labor force and the policy of government subsidies — all this, together with the negative influence of a syndicate "Krovlya" (Roof), of the Russian banks and of foreign capital resulted in a low level of utilization of the production apparatus of the Urals metallurgy. For example, in 1903 out of 146 blast furnaces of the Urals 55 stood idle, of which three belonged to the closed-down plants. In 1910 out of 136 blast furnaces 74 stood idle (of these 30 in the closed-down plants); for 1912 the corresponding figures were 131, 57, and 30.‡

Chronic underutilization of the productive apparatus of industry was one of the manifestations of the objective process of decay of Russian capitalism during the period of imperialism.

The activity of monopolies is closely connected with the sharp reduction of capital investments in industry in 1910-1913 and the slowing down of its progress — another striking expression of the backward character and decay of Russian capitalism. The decrease in the tempo of capital investment in the period of imperialism as compared with the preceding period may be seen from the following data. During the period of industrial revival of the nineties in the 19th century the basic capital of Russian incorporated industry increased almost by 194%, while during ten years after the crisis (1904-1913) — only 66%. Such a reduction was brought about by the lower tempo of accumulation during the period of imperialism. This was inevitable under conditions of low utilization of plant capacities and the narrowness of the domestic consumption market. In the lowering of the tempo of accumulation one cannot fail to see the beginning of specific imperialist difficulties appearing in the process of capital reproduction.

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* For example, at the 38th Congress of the mine owners of the south of Russia (in 1913) one of the prominent members of the "Produgol" openly declared in connection with the expected growth of coal production in 1914, as compared with 1913, "If such an amount really will be produced, this will be very sad. I think that actually production will be less than that." (Records of the 38th Congress of mine owners of the south of Russia, vol. III, Kharkov, 1914, p. 44.)

† Central State Archive (TsGIAL), f. 616, op. 5, d. 133, 1.1; f. 37, op. 74, d. 756, l. 1.

‡ TsGAOR, f 6, op. 1, d. 99, l. 35.

* Central state archive (TsGIAL), f. 37, op, 74, d. 280, 1.48.

† See "Records of the 37th Congress of the mine owners in the south of Russia," Vol. I, Kharkov, 1913, pp. 2-3.

‡ Records of the 19th Congress of the mine owners of the Urals. Sankt Petersburg, 1914, pp. 148-149.

Reduction of capital investments determined the reduction of the growth of production funds in Russian industry from the opening of the 20th century. Using calculations of Academician S. G. Strumilin* we find that the production funds of incorporated industry during the pre-war decade increased 1,450 million rubles or 65%, while in the last decade of the 19th century by 1,128 million rubles or by 221%. The data concerning the growth of the production apparatus in such leading branches of industry as southern metallurgy and the cotton textile industry are especially significant in that respect. In the last decade of the 19th century in southern Russia 25 new blast furnaces were brought into operation; during 14 years of the 20th century (from 1900 to 1913) only 13.† The production apparatus of the cotton textile industry in 1900-1910 increased annually on the average of 160,000 spindles and 6,200 looms, while in the preceding decade it increased by 220 thousand spindles and 6,400 looms.

The process of renovation of the basic capital proceeded more or less intensively only during the period of the prewar revival, but even this was not so in certain branches. Expansion of production funds and capitalist rationalization during that period went mainly in the munition industry, in metal manufacturing and machine building which were overloaded with military and government orders. But even in these branches the expansion and renovation of the production facilities proceeded on the basis of old or only slightly modernized technique. The slowing down of the tempo and of the volume of renovated basic capital, undoubtedly, was also a result of the raising of prices by the monopolies on equipment and materials which on the eve of the war were considerably higher than in the advanced countries of the West.

There is nothing strange then in the fact that on the eve of the war the part of the obsolete equipment in Russian industry was extremely great. According to the data of Academician S. G. Strumilin in 1913 the production funds of industry were worn out and depreciated by at least 30% of their nominal amount.

In Tsarist Russia with cheap labor power supplied by the villages in the process of being ruined by the "savage landlord," with an extremely high degree of exploitation of the working class and the action of such factors as the Tsarist protectionist policy a huge volume of government orders monopolized by a handful of influential capitalists and generous financial support to the sickly enterprises, etc., any urge for technical progress was weakened even in the premonopoly period. With the coming of the domination of monopolies one more obstacle was placed in the way of technical progress. "So far as the prices established — even for a time — are monopoly prices," pointed out V. I. Lenin, "then to a certain degree incentive disappears for technical progress and consequently for any other progress; and, further, so long as there is the economic possibility of artificially holding off technical progress.*

All technical problems were considered by the Russian bourgeoisie exclusively from the point of view of their narrow money interests. Frequently monopolies artificially held off technical progress, preferring to utilize old, backward technique. Even V. I. Grinevetsky — an eager defender of the bourgeoisie — analyzing the influence of the syndicates in Russian industry on the progress of production technique had to recognize that "in the field of the progress of production technique this influence was very weak... frequently reducing to zero the whole influence of the technical organization."†

In the metallurgical industry technical progress by the end of the 20th century was slowed down and was in fact reduced to the growth and renovation of the power economy. In the south of Russia even by the end of the First World War there was no metallurgical plant where loading of the blast furnaces and casting of pig iron was mechanized, while in the United States by that time 90% of the pig iron casting was done by machines. This was a direct result of the policy of the "Prodamet" and of foreign and Russian banks which stood behind it. The technical backwardness of the Ural metallurgy may be seen from the fact that only in the first decade of the 20th century did the Ural plants change from the Krinichnyi and puddling methods of iron and steel production to open hearths. Monopolists tried by all means to prove that the cutting machines could not be applied in the Donbas mines. A well-known leader of the southern mine owners' Conference Board Von Ditmar in 1913 announced that it was impossible to apply cutting machines in the Donbas because of the "unsuitable natural conditions."‡

Petroleum monopolies by the end of the 19th century doomed almost all branches of the petroleum industry to technical stagnation. The kings of petroleum rejected a new system of drilling tubes offered by engineer N. Sokolovsky though they themselves recognized that these tubes "are a tremendous improvement over the drive pipes and American tubes.** Drilling by hand was widely used, a system under which the drill was turned by the power of the worker. This method was so archaic that finally even local Tsarist officials decided to forbid it. But Mr. Nobel appealed this decision and asked the Caucasian viceroy to "permit hand drilling." In the field of petroleum processing the progress of technique also proceeded extremely slowly and the newest method of petroleum processing — cracking — which was worked out in Russia for the first time, was ignored by the Baku monopolists. The owners of enterprises in the petroleum industry did not want to apply new technique (electromotors, etc.) to their power economy. They affirmed that a steam power prime mover "was ideal." A representative of one of the firms declared at the conference of enterprise owners of the Baku petroleum industry in 1910 that their firm had had twelve electromotors, but threw them out and returned to steam.*

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* Amortization was not considered (see S. G. Strumilin, "Essays on the Soviet Economy," Moscow-Leningrad, 1930, p. 79).

† A similar decrease in the volume of capital construction was a direct result of the lowering of capital investment in metallurgy by more than four times during the period 1910-1914 as compared with 1895-1900 (Academician S. G. Strumilin, "Ferrous Metallurgy in Russia and in the USSR," published by the Academy of Science, USSR, 1935, p. 233).

* V. I. Lenin, "Works," Vol. 22, p. 263.

† Prof. V. I. Grinevetsky, "Post-war Perspectives of Russian Industry." Moscow, 1919, pp. 146-147.

‡ Central State Archive (TsGIAL), f. 37, op. 77, d. 281, l. 57

** Ibid., d. 869. 1.19.

Technical backwardness in many cases was preserved on purpose by foreign capitalists active in Russia. For example, an investigation carried out in 1915 by the Defense Ministry of the aviation plant of "Gnome and Rion" which belonged to French capitalists, showed that the plant was the most backward among all Russian plants. It did not even have its own technical base and constructors because the Paris central office did not want to have "independent or strong branches."† German electro-technical concerns which were owners of almost the whole Russian electrotechnical industry tried to give it a typical colonial character, limiting its activities to the assembly of imported parts. American capitalists who monopolized the production and marketing of harvesting machines acted in the same way.

Among the branches of light industry where technical stagnation was especially great as a result of the activity of capitalist monopolies the sugar industry should be named. Even Tsarist officials had to note that "technical innovations, which would lighten labor, are not noticeable here."

The direct result of the retardation of technical progress by the monopolies was the slowing down, stagnation and even fall of labor productivity in the most important branches of Russian industry. The growth of power per worker in industry was in many cases, and especially in the extracting industries, not accompanied by the corresponding growth of its productivity. To a considerable degree this may be explained by the fact that the growth of power per worker was insufficient and relatively smaller than at the end of the 19th century. For example, in the southern metallurgical industry the energy supply per worker increased from 1.02 hp. in 1890 to 3.34 hp. in 1900, 3.15 hp. in 1909 and 4.5 hp. in 1913.‡ Yet, while in 1890-1900 the productivity of labor increased considerably (according to the data of G. D. Bakulev, by 70%**) during the period of the pre-war boom it actually remained at the same level. The productivity of labor in the coal mining of the Donbas remained stagnant. In the petroleum industry annual production of petroleum per worker in 1913 was almost three times lower than in 1889 when it had reached its highest point. In the sugar industry the productivity of labor was extremely unstable.

The early development of state-monopolistic tendencies in Russia, the tying in of state capital with the monopolies of private capital through "regulation," strengthened the monopolistic domination of a handful of magnates and produced a negative influence on the development of the productive forces. For example, the establishment of sugar quotas by the Tsarist government in 1895 with the purpose of regulating the volume of production, marketing, and prices in the interests of the sugar mill owners which, according to a just statement of M. Y. Gefter, was an exceptional phenomenon in the practices of world capitalism,†† sanctioned a policy of limiting production carried out by a syndicate of the owners of sugar mills, and put obstacles in the way of constructing new mills.

As a striking example of the retarding influence of state-monopolistic tendencies on the development of the productive forces, the activity of the Committee for placing railroad orders (1902-1915) may be cited. This Committee, which limited the placing of orders for rails and rolling stock among a small number of privileged, mainly syndicated enterprises, in this way destroyed free competition among the enterprises and greatly strengthened the monopolistic position of the "Prodamet" and of the syndicates of transport machine building with all the consequences that followed from this. In effect it established quotas of production which were exactly what was required by the interests of the industrialists who did not want to allow "overproduction." It is not accidental that the industrialists considered the establishment by the government of the quotas of production of locomotives, cars, and rails together with the fixing of prices the most commendable side of the Commitee's activity.

The domination of the monopolies and of foreign capital in Russia was also a factor determining the character and tempo of development of new industrial regions, sources of raw materials, and branches of production. Having established themselves in the old industrial regions, the dominating monopolies tried by all means to prevent the development of production in the new regions. For example, in the mining industry (petroleum, coal, non-ferrous metals) the policy of the monopolies and of foreign capital was directed mainly at grabbing the sources of raw materials and holding them in their hands and not at their rapid industrial exploitation. The Baku monopolists, following the course set by them — "oil fields outside of the Baku region should not be promoted", — retarded the development of the oil fields in new industrial regions (Maikop, Groznyi, Emba, etc.). In this way they preserved the lagging of production in the main area (Baku) behind the demand of the consuming areas (center, northwest). The policy of the monopolies resulted in an abnormal territorial distribution of the productive forces which delayed their development.

Russian capitalists who obtained tremendous superprofits in the established fields very unwillingly invested their means in new branches of production. For example, in Russia before the October Revolution there was no production of aluminum in spite of the fact that in the 19th century one Russian engineer, Penyakov, suggested a method for its production. Russian capitalists even during the war years considered that there was no place for the production of aluminum in Russia because after the war it would be possible to obtain cheap metal from France and the United States.*

Monopoly capitalism in pursuit of the highest profits brought the predatory exploitation of the country's natural resources to the limit. Plundering natural resources by monopolies and foreign capital together with the use of cheap labor was one of the means of obtaining higher profits because it made possible an extremely low cost of production. In the Donbas the exploitation of the richest deposits of coal was carried on without a study of the energy and chemical qualities of the coal. Oil fields were the object of the most reckless exploitation by monopolies and foreign capital. "Under the old regime," reports D. V. Golubiyatnikov, a noted explorer and expert on the Baku oil fields, "the development of the oil fields was carried on in a most reckless manner."* This resulted in enormous losses of petroleum and flooding of the oil wells with subterranean water. General unjustified expenditure of petroleum (considering the losses of Baku) amounted in 1913 almost to 20% of the whole output of petroleum. As a result of the predatory exploitation of the oil fields in Baku and Groznyi by Russian and foreign capital, the petroleum-bearing strata at the moment of nationalization of the petroleum industry by the Soviet power were almost 50% ruined. The exploitation of the most valuable deposits of copper, gold, and other metals was also extremely irrational.

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* "Records of the 29th ordinary conference of petroleum industrialists in the city of Baku." Baku, 1911, vol. I, p. 237.

† GIAMO, f. 369, op. 8, d. 21, 1.19.

‡ See R. S. Lifshits, "Geographical Distribution of Industry in Prerevolutionary Russia." Published by the Academy of Science, USSR, 1955, pp. 252-253.

** See G. D. Bakulev, "Ferrous Metallurgy of the South of Russia." Moscow, 1953, p. 124.

†† See "Historical Journal," Vol. 38, 1951, p. 119.

* Central State Archive (TsGVIA), f. 13251, op. 28, d. 1, 1.66.

During the period of imperialism the decay also spread to agriculture. Russian monopolists and foreign capital, while pitilessly exploiting this branch of social production, yet preserved its social-economic and technical backwardness. The process of decay of capitalism in agriculture was tied up with the growth of parasitism of the class of feudal-like landlords who were losing their economic base and maintained their existence only through uninterruped growth of their mortgage indebtedness and direct state support at the expense of the state budget.

The decay of capitalism was also apparent in the character of the business cycle in Russia during imperialism. The narrowness of the domestic market, undermined by monopolies, the chronic underutilization of the capacity of enterprises and the generally unstable situation in the country brought about a deformation of business cycles. The most striking example of this is the prolonged character of the depression of 1904-1908. In our opinion it is impossible to agree with those economists (for example, with A. F. Yakovlev) who deny the generally depressed state of industry in 1904-1908 and who characterize the year 1904 and 1906-1907 as years of revival and even of partial boom.† These economists forget to take into account the special character of depressions under conditions of the decay of Russian imperialism which did not mean an absolute stagnation of production, marketing, and of the movement of commodity prices. The deformation of the cycle was expressed in the fact that the industrial boom of 1910-1914 happened to be nevertheless unstable and shortlived. It is characteristic that a new crisis, the approach of which was felt on the eve of the war, was developing under conditions of underproduction of the most important kinds of industrial products and raw materials and of sharply increased difficulties of reproduction.

Monopolies greatly intensified the chaotic character and deepened the anarchy of capitalist production. This was an inevitable consequence of the uneven monopolization of various branches of industry, transport, credit, and trade and of a gap between the levels of development of industry and agriculture.

The decay of capitalism found its expression in the slowing of the tempo of economic development of the country during the period of capitalism in spite of the fact that during the prewar industrial rise both industry and agriculture made certain progress. V. I. Lenin wrote in 1913 that the development of capitalism and culture is going on in Russia at the speed of a tortoise. Calculations show that even during the period of industrial boom of 1910-1914 at its relatively high tempo, industrial development was slower than at the end of the 19th century. For example, according to calculations of A. L. Sidorov the average annual growth of industrial production in 1909-1913 was 5%, that is was only half of the growth during the boom of the nineties of the 19th century. Even more striking are the data on the slowing of the tempo when we consider the growth of production of the most important industrial products. For example, the annual growth of coal production in the pre-war years (1908-1913) was, according to our calculations, 6.2% as compared with 9.9% in 1894-1899 (in the Donbas even 15%); the corresponding figures for pig iron were 10.9 and 17.5. Here, no doubt, the reduced tempo of capital reproduction, inherent in imperialism, found its reflection.

During the period of imperialism Russia in the economic respect was lagging more and more behind the advanced countries of the west and this may be seen in the fall of Russia's part in world production by comparison with the 19th century and the growing disparity between Russia and the main capitalist countries in per capita production. The decay of capitalism in Russia considerably intensified her technical-economic backwardness.

The decay of capitalism was also apparent in the increasing impoverishment of the working class and all laborers and the simultaneous growth of riches in the hands of the bourgeoisie and landlords. At the same time it was characteristic of Russia that it had no thick stratum of the rentier class.

The decay of capitalism in Russia went on under the dictatorship of the feudal-like landlords and politically found its expression in the growth of the counterrevolutionary aspirations of the Russian bourgeoisie, in the establishment by them of an open alliance with the landlords with the Tsar at their head. The counterrevolutionary policy of the Russian bourgeoisie, together with their inability to ensure the objectively necessary growth of social production serve as a striking example of their inner decay. "Both classes...," wrote V. I. Lenin in 1911 about the feudal-like landlords and the "young" Russian bourgeoisie "already are quite decayed — the first more, the second less, of course, but in general both are quite decayed."*

Venality, bribery on a gigantic scale, swindles of all kinds — inevitable concomitant of the dominance of monopolies and financial capital — bloomed luxuriously in Russia under the corruption of the official bureaucratic apparatus of Tsarism and the parasitic way of life of the nobility which long passed its zenith. The first world war greatly expedited the decay of Russian capitalism and accelerated its downfall.

The decay of capitalism showed the growing conflict between the social productive forces and capitalist productive relationships. The Russian imperialist bourgeoisie, being a bearer of the outworn productive relationships, exhausted their possibilities as leaders in social production and became a brake on the development of the productive forces of the country. Their removal from the guidance of social production became an urgent historical necessity. This problem was solved by the Great October Socialist Revolution which opened a new era in the development of our motherland, a new epoch of world history.

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* "The Field of Fuels," No. 8, 1922.

† See A. F. Yakovlev, "Economic Crises in Russia." State Publishing House of Political Literature, 1955, pp. 311-339.

* V. I. Lenin, "Works," Vol. 17, p. 77.

P. Bunich:

Preparing New Amortization Rate Norms for the Basic Funds

The norms of amortization and the value of basic funds determine the appropriations for amortization. Amortization norms are required for calculating costs of production, prices, funds for maintaining the aggregate social product, national income, the effectiveness of new production techniques, financing capital construction, capital repairs, and modernization, and strengthening self-support. Therefore the working out of new norms of amortization has great importance for the economics of socialist production.

At present appropriations for amortization have even greater importance. They are related to the rapid tempo of growth of basic productive funds and to the increased share of amortization in production costs and the aggregate social product.

The present method of calculating amortization is considerably out-dated. Norms of appropriations for amortization do not provide sufficient funds for modernizing machines and equipment. Thus, there arises the question of working out new norms of appropriations for amortization. This should be based on the following principles.

The appropriation norms for amortization may be differential or average. The norms of amortization calculated for separate types of basic funds are called differential, while the norms of amortization for entire enterprises, economic councils, ministries or the whole national economy, calculated as average amounts on the basis of differentiated norms and the structure of basic funds, are called average.

Differential and average norms have different meanings. Differential norms serve as a basis for average norms and play an important role in calculating the cost of production of various products, the effectiveness of new techniques, and determining the degree of amortization of the functioning and used-up equipment. Average norms are important for general planning and for appropriating sums for amortization. Having scientifically computed differential norms and knowing the value of basic funds, average norms can be prepared by simple calculations without sanction of the legislature.

Differential amortization norms were used in the industry of the USSR until 1938. This procedure was changed by order of the Council of People's Commissars on January 8, 1938, when average norms of amortization were introduced. The average norms of amortization were made more exact in 1949, 1951 and 1955. The main defect of these norms was that they were not based on scientifically computed differential norms of amortization. At best the old differential norms of amortization of 1930 and the structure of basic funds were taken into consideration. And not infrequently the average norms of amortization for enterprises were established after considering their financial resources or needs for capital repairs. In this system the amounts for amortization were misrepresented and self-financing was weakened. The new norms of amortization should be differentiated by types of basic funds. As for general norms, they should be determined by differential norms and by the structure of the basic funds, i.e. calculated without legislative sanction.

The norms of amortization could be calculated for separate elements (for capital construction and for capital repairs) or in general, without separating various elements. The norms of amortization by elements are more progressive, because they allow division of the appropriations for amortization between those centralized by the state (norms for capital construction) and those which remain at disposal of enterprises (norms for capital repairs).

Beginning in 1949, when amortization norms for capital repairs were revised, norms for renovation were also mechanically changed, and the general norms of amortization remained essentially on the same level. For instance, in 1949 the increase in the wholesale prices resulted in the norms of amortization for capital repairs being considerably increased while at the same time norms of amortization for renovation were sharply decreased. As a result, norms for renovation constituted: in the building-materials industry 0.7%; in light industry 0.7% and in the fishing industry 0.5%. This mechanical changing of some norms at the expense of others resulted in making these norms inadequate for real renovation. Therefore new norms of amortization should be established separately for capital construction and for capital repairs.

In 1949 the norms of amortization for renovation in a number of branches were lowered not only by increasing norms for capital repairs, but also by lowering general norms: for instance, in the coal industry from 5.6 to 4.2%; in the timber industry from 6 to 4.7%, etc. Thus the complete renovation of the coal industry would require 111 years, and the timber industry 59 years. It would be expedient in the future not to allow mechanical changes in the norms for renovation to offset changes in the amortization norms for capital repairs and vice-versa.

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The correct determination of amortization norms requires precise data about all factors affecting the level of appropriations for amortization — the value of instruments of labor, expenditures for capital repairs and modernization, the unamortized value of the basic funds and the terms of service of the instruments of labor.

At present the value of instruments of labor is reflected on the balance sheets of enterprises in different prices — depending upon the date they were put into operation, the method of construction (by contract or by own resources), type of prices (by agreement or by price-list). One has to remember that there are certain defects in active prices. For instance, present prices for instruments of labor do not include expenditures for geological surveys although such work is socially necessary. The scale of this work in some branches of industry is very considerable (oil, coal, metallurgical industries, etc.). The former Oil Industry Ministry alone spent 1.5 billion rubles in one year for geological surveys and for prospecting and drilling — 2.5 billion. Considering the likely growth of the oil industry during the Sixth Five Year Plan, these expenses will amount to 20-30 billion rubles. Ignoring expenditures for geological surveys, when evaluating capital investments (aside from expenditures for prospective oil drilling, for they are included in the estimates as the value of drilling for exploitation) leads to understating the value of the basic funds, the appropriations for amortization and the cost of production.

At the same time the valuation of basic funds very often include expenditures which have no relation to them. For instance, the valuation of buildings and installations include not only appropriations for amortization based on the value of the building, transportation mechanism, and workers' hostels (corresponding to actual expenditures of fixed funds of construction organizations for the erection of given objects), but also the whole value of the building, transportation mechanism and other expenses, made according to part three of the summary estimate. Thus, the valuation of buildings and installations is raised by the amount of the value of capital expenditures because of the third part of the summary estimate.

Present-day wholesale prices do not permit profitableness in certain branches, for instance, the coal industry, and prevent necessary accumulation in a number of economic councils; on the other hand, they make some machine-building enterprises too profitable. This indicates that prices of instruments of labor should be revised.

The disparity between original and reconstruction evaluations should be eliminated through the revaluation of the instruments of labor as of January 1st 1960. The revaluation of basic funds of the USSR national economy of January 1955 (in prices of July 1st, 1950) would result (as a rough guide) in increasing the monetary value of basic funds by 24%. If the corrections, corresponding to the revaluation of instruments of labor by January 1st, 1960 (in prices at the date of revaluation) were introduced into these calculations, then the difference in the valuation of basic funds before and after a general inventory would decrease. The reason is that the revaluation was performed on the basis of lower prices.

The apparent increase in the monetary value of basic funds is explained by the following. During a long period the wholesale prices of the instruments of labor increased. This was caused by wages (in money) growing more rapidly than labor productivity. Not until 1950 did a period of gradually declining prices of instruments of labor begin. As a result, present prices of basic funds are approximately on the 1945 level. Thus, all basic funds which were put in operation before 1945 have lower valuations than those of today; those which were put in operation between 1945 and July 1, 1955 — have higher valuations, while those which began to function between 1955 and the present have up-to-date valuation. In the national economy as a whole most of the basic funds have a lower evaluation than contemporary ones. Their revaluation would result in their higher monetary value. This conclusion seems strange to A. Mitrofanov,* but this shows only that he is not acquainted with the actual situation.

Further changes in the expenditures of labor-power for the production of a unit of output, the appearance of new types of machines and the revision of wholesale prices, will again result in a disproportion between original and restoration valuations. The need for a new revaluation of basic funds is arising. This revaluation could be achieved mainly with the help of coefficients, for in contrast with the previous one it would begin from an improved base. These coefficients should represent changes in the prices of instruments of labor and the appearance of new more productive types of basic funds. Thus the valuation of basic funds will always be on the level of the reconstruction valuation and this will provide correct determination of the value of basic funds, amortization and prices, and will strengthen enterprise self-support.

The difference in prices of basic funds resulting from different methods of valuation of capital investments in contractual or internal (using resources of the enterprise) methods of construction could be eliminated by transferring to the uniform method of valuation of capital investments, based on the amount of units of power used and the value of each such unit. But because such indices are not yet worked out, another method of valuation could be recommended, namely: to evaluate capital investments according to the estimated value of work actually performed; i.e. to evaluate all construction objects with the system of price formation used in the contractual system of construction.

To end the disparity in prices between the first and later lots of production it is correct to include in the price of the product expenditures on planning and mastering production, or to cover such expenditures from special appropriations from the fund for new technique created in the economic councils by special additions to the cost of production.

As for expenditures on geological surveys and on prospecting, the main difficulty in including them in the value of the basic funds is that not all this work is related to the immediate construction of new instruments of labor, and that not all of it has favorable results. Therefore the question arises: to the value of which basic funds should these expenditures be added? In our opinion, expenditures on geological surveys should be reflected in the value of installations of the extractive industry in the form of specially calculated additions to the value of these installations. These additions could be calculated by dividing the volume of annual work on geological surveys by the value of all installations put in operation in certain branches of the extractive industry during the same year.

Improvement in the prices of basic funds further demands that in the valuation of buildings and installations, factors based on the value of instruments of labor as well as other factors which determine prices should enter the appropriations for amortization. These sums appear on the balance sheets of construction organizations and are not included in total expenditures reflected in the third part of the summary estimate.

Another important factor affecting the size of appropriations for amortization are expenditures for capital repairs. The existing norms of amortization for capital repairs for industry as a whole and for most of the separate branches provide its financing. This can be seen from the following table.

The comparison of appropriations for amortization intended for capital repairs with actual expenditures on capital repairs shows that appropriations for amortization are higher than actual expenditures in almost all branches of industry. However, there is a certain inaccuracy in this comparison. First, actual expenditures could be underestimated because of the limited amount of appropriations for amortization. Second, actual expenditures could be overestimated because of irrational execution of repairs. But in spite of this, the comparison of actual expenditures on capital repairs with appropriations for amortization shows that in industry as a whole, expenditures on capital repairs are provided for by appropriations for amortization.

Nonetheless it should be pointed out that for a number of reasons the norms of amortization for capital repairs should be lowered. Among those reasons are the following: as the result of revaluations of basic funds, their monetary value is increasing; modernization leads to decreases in expenditures on repairs; withdrawal of the basic funds because of moral wear and tear decreases the need for repairs; there is lowered costs for capital repairs, because of further mechanization of repair works, centralized manufacture of spare parts, centralized carrying on of certain operations, more economic expenditure of materials, utilization of cheaper and better types of raw materials, liquidation of certain types of repairs which are "too profitable," lowered overhead expenses, etc.

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* See "Problems of Economics," No. 9, 1957, pp. 134-135.

Capital repair expenditures are also lowered because of better quality of basic funds, rational use of instruments of labor, improved maintenance and repair, carrying out all repairs on time, calculating the economic effects of capital repairs, improving the system of self-support and strengthening individual material interest in lowering expenses on repairs, improving their quality, and shortening the time for their accomplishment. The new norms of amortization intended for capital repairs should be worked out after considering all the factors enumerated above; the norms should be differentiated according to types of basic funds, the degree of complexity of the objects, the branches of national economy, intensity, relay system, serial production, automation, volume of work and climate of the regions of the country.

Specifically it is necessary to consider the correctness of distribution of expenditures for current (small and medium) and capital repairs and the sources of financing them. Repairs are divided between a) regular, i.e. connected with normal wear and tear, replacement and amortization and b) random, i.e. conditioned by extraordinary causes and requiring additional expenditures of labor. At present, in the industry of the USSR generally only planned (regular) repairs are made while repairs arising from random breakage and accident are very rare. Therefore the greater part of repairs must be financed from appropriations for amortization.

The question of financing the modernization of existing machines and equipment is also very important. This is related to the comparatively high rate of wear and tear of basic funds in USSR industry (especially in the production of equipment for light industry and the food industry, as well as in the old industrial cities); to the results of technical progress wherein many old machines become economically obsolete; to the impossibility and sometimes inexpediency of satisfying the needs of socialist society by new capital construction alone; and to the necessity of modernizing the active instruments of labor.

At present the modernization of the instruments of labor is financed from amortization intended for capital repairs (approximately 0.5 billion rubles in 1956), credits from the State Bank of the USSR, from funds of different enterprises, expenditures on rationalization and invention, and savings resulting from lowering the cost of capital repairs. The working out of new norms of amortization raises the question of the correctness of financing modernization from the fund for amortization and the limits of such financing.

In our opinion, some types of basic funds, such as for metal-cutting, forge-pressing, and building-equipment appropriations for amortization should be one of the sources for financing modernization. This is explained by the fact that modernization partially compensates for the more rapid depletion of basic funds, resulting from moral wear and tear, and shortening of the term of service of some instruments of labor; the depletion of investment funds does not arise from different degrees of loading or differences in construction. Funds for modernization must be accumulated in the same way as for capital repairs, with one difference: In determining terms of service it is necessary to consider not the physical wear and tear of various parts, but the loss of their economic effectiveness.

At the same time financing of modernization is not always possible because of amortization of machine components or of a group of machines, withdrawn from operation before the end of their physical life. In the process of modernization very often the number of component details and assemblies increases and more expensive components are installed. Such modernization cannot be financed only from amortization calculated on the basis of the value of old components and groups. Therefore modernization has to be financed out of national income. In this connection one cannot agree with Academician S. Strumilin who asserts that all modernization should be financed from the accumulation, while (as he fails to see), part of the funds for modernization objectively is in the fund for amortization. In addition, he limits the total expenses for modernization to the amount of depreciation of instruments of labor from moral wear and tear.* But expenditures for modernization do not depend upon lowering the cost of reproduction.

branches of industry	norms for capital repairs as a % of the av. value of the basic funds	actual expenses for capital repairs in 1955 as a % of the av. annual value of the basic funds
ferrous metal	2.0	1.98
non-ferrous	3.0	2.71
coal	2.6	2.61
oil	2.2	2.30
chemical	2.4	2.39
electric power stations	2.2	2.17
electro-technical	1.8	1.61
radio-technical	1.5	1.42
heavy machine building	2.0	1.75
ship building	1.8	1.62
general machine building	2.9	2.76
machine building for construction and road bldg.	1.9	1.67
building mat. ind.	3.66	2.58
paper & woodwork. ind.	3.3	2.73
timber ind.	4.7	3.96

The funds received for modernization from appropriations for amortization should be included in the norm intended for capital repairs. The reason is that modernization is often accomplished with capital repairs and the enterprises themselves should given the right to solve questions about repairs or modernization of machines and equipment.

To correctly calculate norms of amortization it is necessary to consider the unamortized value of basic funds. This is especially important for instruments of labor the unamortized value of which is still sizeable, draught animals, dairy cattle and beef cattle. The amount of unamortized value could be determined on the basis of materials of industrial enterprises, selective investigations, and by studies of this question by scientific research institutes of various branches.

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* See "Problems of Economics," No. 8, 1956, pp. 51-53.

One of the principal problems arising in connection with working out the norms of amortization is the calculation of terms of service of basic funds. Many of them are at present determined wrongly. This explains the inexactness of norms of amortization intended for renovation. In some branches of industry they do not provide for replacement arising from wear and tear. This can be seen from the following data (in % of the original value of the basic funds):

branches of ind.	norms of appropriations for amort. on cap. construction in 1956 plan	withdrawn on account of wear and tear				
		1951	1952	1953	1954	1955
coal	1.69	3.29	3.35	3.14	3.17	3.0
timber	0.50	1.74	1.72	-	2.64	3.36
fishing	0.90	1.16	1.17	-	1.41	1.54

This table shows that in the listed industries the norms of amortization for capital construction were considerably lower than the value of basic funds withdrawn annually for replacement, expressed in percentages of the original value of all basic funds. The norms of amortization for various types of equipment are also clearly underestimated. For instance, many years experience shows that the norms of amortization for boring installations, established in the amount of 9.2%, is underestimated almost three times. At the same time the opposite is also observed. The norm of service of buildings and installations in the "Mosrentgen" factory is 40 years, while the actual time is 60 years, but the norms for power and production equipment are 13 and 15 years and for instruments — 8 and 12 years. In many factories of the radio-technical industry the stone or brick buildings serve not 38 or 40 years, as expected by the norms, but 60 years, and the wooden buildings — not 22, but 34 years, and the power equipment not 10-15, but 14-20 years.

Under the existing morms moral wear and tear, which leads to shortening the term of service, is not considered. Thus, the question about the correlation between the moral wear and tear and the norms of appropriations for amortization arises.

The moral wear and tear of basic funds results in lowering their original value because of the growth of labor productivity (first form) and because of the more advanced types of these funds (second form). In the second form of moral wear and tear both the lowering of original value of obsolete instruments of labor, and the shortening of their term of service are possible.

Although the appropriations for amortization represent part of the value of basic funds transferred to the product, the appropriations cannot be larger (or smaller) than the reproduced value of the instruments of labor minus their value at the time of liquidation. If the value of basic funds is decreasing (including moral wear and tear) then the part which must be transferred to the product in the form of appropriations for amortization is also lowered. Therefore appropriations for amortization are based upon the actual value needed to reproduce basic funds, and consequently do not compensate for the decrease in original value up to the level of the reproduced value. If amortization is calculated from original value, the amount of amortization could be artifically made higher and part of the profit would be transferred into the amortization fund. Thus, we cannot agree with A. Stepankov that the "depreciation of basic funds resulting from the growth of productivity of social labor and consequent lowering of the cost of production of new machines...should be compensated by an increase in norms of appropriations for amortization."*

When calculating the length of service, one should consider the average socially necessary shortening of these terms as the result of the second form of moral wear and tear. One has also to keep in mind the actual possibilities of replacing the old instruments of labor by new ones. Taking into account depreciation associated with shortening the terms of service, the norms of appropriations for amortization would allow a correct determination of actual expenditures for production, the effectiveness of the new technique and orientation of the enterprises towards improving the instruments of labor.

The following is an illustration: Suppose that the value of a new machine is 10,000 rubles; the economy in expenditures on producing one unit resulting from using this new machine would amount to one ruble per unit; the annual output of this machine is 1,000 pieces; the term of service — without taking into account the moral wear and tear — 20 years, and with the moral wear and tear — only 5 years. Therefore, the saving resulting from the use of this new machine, without considering the moral wear and tear would be: 1 X 1,000 X 20 = 20,000 rubles, and with moral wear and tear 1 X 1,000 X 5 = 5,000 rubles. Thus, if the moral wear and tear is not considered, then the expense of the new machine is more than covered by lowered costs, and if obsolescence is taken into account, then the expenses of the new machine would be twice as large as the economy resulting from its introduction. Thus, the effectiveness of a new machine should be determined after considering the terms of its service, i.e. after taking into account the second form of obsolescence.

Some economists oppose considering how moral wear and tear affects the norms of amortization. For instance, Comrade A. Pervukhin writes: "If basic capital would transfer the losses from obsolescence to the product, there would be no difficulty whatsoever in replacing old equipment with new..."† But this argument is not convincing. Amortization does not compensate for all losses connected with obsolescence, but only for those which are conditioned by the socially necessary shortening of the terms of service of the instruments of labor. A certain part of the losses from obsolescence is not reproduced in the value of the product. Among these are the losses resulting from lowering the cost of reproduction of instruments of labor, the extraordinary shortening of their terms of service, and under the capitalist system — from the deterioration of the productive forces during the years of crisis, and from the anarchy of production and competition.

The initial base for calculating new terms of service for basic funds could be: the actual length of service established according to statements on the withdrawal of instruments of labor; selected investigations; the works of scientific-research institutes, and the materials from the next general inventory. The materials derived from the revaluation of basic funds in the people's democracies and the data on the terms of service of the instruments of labor in the capitalist countries should also be considered.

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* "Problems of Economics," No. 3, 1957.

† See "Problems of Economics," No. 1, 1957.

According to the data of the Lathe division of the former Ministry of the Machine-Tool Construction Industry the average actual term of service in years, established on the basis of the analysis of the documents registering the withdrawal of equipment, was: for aggregate metal-cutting lathes — 22.7 years; for generators — 15 years; for electromotors — 15.5 years; for sharpening and groove making lathes — 34.8 years; for riveters — 26 years; for compressors — 18 years; for turret-lathes — 22.6 years; for turning lathes — 24.2 years; for grinding machines — 25 years, etc.

The analysis of the acts registering the withdrawal of basic funds of the Instrument division of the former Ministry of the Machine-Tool Construction Industry shows that planing lathes serve — 18.5 years; sharpeners — 21.5 years; compressors — 18.5; snipper-automats — 24 years; turret-lathes — 21.3 years; turning lathes — 27.8 years; grinding machines — 24.9 years, etc.

However, the above data were calculated on the basis of a comparatively limited number of machines. Therefore they can be useful only as a pilot calculation. For instance, data on average terms of service in years (from the former Lathe division) of sharpeners was based on an analysis of the terms of actual service on seven machines (with service ranging from 16 to 49 years); for turret-lathes — 23 machines (with service ranging from 11 to 50 years); for turning lathes — 46 machines (from 9 to 52 years). From the former Instrument division the average terms of service were: for sharpeners — on the basis of analysis of 21 machines (with service from 5 to 45 years) for threading semi-automatics — 10 machines (from 16 to 35 years); for turret-lathes — 20 machines (from 8 to 40 years); for turning lathes — 51 machines (from 9 to 41 years) and for grinders — 40 machines (from 6 to 46 years).

But, the determination of the length of service of basic funds cannot be considered an accounting problem alone. It is necessary to take into consideration all circumstances affecting the length of service of the instruments of labor. Thus, the qualifications of the workers are growing; the care of the instruments of labor is improving; technique is developing; the modernization of the machines in use is increasing. All this leads to prolonging the length of service of the basic funds. On the other hand, the intensity and the relay-system of work in enterprises is growing; new automatic and conveyor lines are being established; serial and mass production are increasing. This leads to prolonging the length of service of basic funds. Obsolescence also has the effect of replacing old equipment with new when resources are available.

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Norms of amortization by types of basic funds could not be worked out for the entire enormous nomenclature. Thus there arises the question of special classifications of basic funds. This classification depends upon the number of norms, the volume of work in calculating appropriations for amortization and the correctness of the charges for amortization.

The classification of basic funds deisgned for charging amortization is based upon the purposes of the basic funds. When grouping basic funds by their purposes, their composition should be specified as follows: a) instruments of labor serving to produce energy, i.e., power-plant equipment; b) instruments of labor used to transmit power, i.e., electric circuits; c) instruments of labor designed for the mechanical, thermal, chemical or other kinds of processing of products.

Furthermore, in the composition of basic funds the instruments of labor used in conjunction with natural processes should be separated, for instance, dairy and beef cattle, orchards, etc. Basic funds are also utilized for moving industrial freight (mechanized means of transport, etc.). A considerable share of the basic funds represents the material conditions required for the realization of the process of production, i.e., buildings, protective plantings, etc. Land, which is one of the material conditions of production, and in a number of cases is the instrument of labor by which products are obtained as a result of natural processes, is not included among the basic funds, because under socialism land has no value. Capital investments on the land-plots, the bowels of the earth, forests and water expanses, for instance, for draining, irrigational works, the expenses of planning land-plots, preparing arable areas, etc. is another matter. These expenditures are included in the value of basic funds in the group "Construction" or in the group "Conservation Work" (aside from construction).

At present the "Classification by Types of the Basic Funds of the USSR National Economy" approved by the Central Statistical Administration of the USSR in 1954 is in force. According to this classification, among the instruments of labor the following are presented separately: 1) buildings; 2) construction; 3) transmission; 4) machines and equipment, including a) power producing machines and equipment, b) other machines and equipment; 5) industrial tools and instruments of production, agricultural machines and implements; 6) means of transportation; 7) perennial plantations. In addition, in agricultural enterprises and organizations — "Draught and Dairy Cattle and Other Animals, Poultry, and Apiculture" are separated; for the timber industry — "Draught Animals"; for agriculture and railroad transport — "Conservation Work on Land and Water" (without construction). This classification has certain defects. First, it prevents judging the degree of development of technical progress, and in particular the automation of the production process. Measuring instruments, regulatory mechanisms and laboratory equipment are not separated into special groups, while these types of instruments of labor have specific and ever growing roles in the process of production. Under the acting classification inventory, implements and technical libraries are grouped together, in spite of the fact that each of them has a specific purpose.

Thus, the new classification of basic funds according to their purposes should distinguish instruments of labor by the following: 1) buildings; 2) construction; 3) transmission installations; 4) machines and equipment, including a) power producing machines and equipment; b) working machines and equipment, measuring instruments, regulatory mechanisms and laboratory equipment; c) other machines and equipment; from the group "Machines and Equipment" automatic machines and equipment are separated; 5) tools and implements of production; 6) inventory; 7) technical libraries; 8) means of transportation; 9) perennial plantations. Furthermore, it is expedient for some branches to be singled out in special groups: "Draught and Productive Cattle, Other Animals and Poultry, and Apiculture" (for agriculture); "Conservation Works on Land and Water" (for agriculture and transport), etc. The proposed classification would correspond more exactly to the different purposes of basic funds and would not be excessively differentiated. The classification built on the base of amortization intended for the charging of amortization must consider in addition the factors affecting the length of service and the norms of the appropriations for amortization — the materials for instruments of labor, intensity of work and the utilization of the relay system, etc.

The working out of the new classification depends in many respects upon the correct determination of the inventory objects. The objects of inventory are characterized by a certain isolation of one from the others, performing independent functions and by a certain compactness and entireness. An excessive division in parts of the inventory objects would complicate the calculation of the norms of appropriations for amortization, the accounting of the basic funds and the charging of the amortization. Therefore, whenever it is possible, the inventory objects should be made broader, calculating their norms as the average weighted quantities out of the value and norms of amortization of simple elements.

The new classification of basic funds designed for charging amortization must continue the differentiation of buildings by the type of their construction, because this is connected with the different terms of their service and expenditures on capital repairs. The regular type buildings should be divided: wooden, stone, concrete, ferro-concrete, mixed type; the light type buildings — wood, clay-adobe, unbacked bricks, mixed type, etc. Besides, the building could be divided as main and auxiliary, because with all other conditions being equal (the same branch of production, same type of construction, utilization of same materials) the terms of service and the expenditures on capital repairs of main buildings depend upon the technological operating conditions and the system of work-shifts, while the terms of service and expenditures on capital repairs of the auxiliary buildings, as a rule, do not depend on these factors.

Buildings constructed of the same materials having the same type of construction, functioning in conditions of similar technological processes and with the same type of relay system of work, would have different expenditures on capital repairs depending on the degree of planning and organization of public services (heating, lighting, water supply, sewerage, elevators, etc.), the character of external and internal finishing, construction of the principal elements, height of each story, etc. Different amounts of expenditures on capital repairs with all other conditions equal, demands different norms of amortization for capital repairs. This explains the necessity of dividing the buildings into groups with respect to the degree of planning and organization of public services, etc. For this it would be advisable to divide the buildings into the following groups: with minimum, regular, and maximum expenditures on comforts. As for other factors affecting the amount of capital repairs, they could be reflected in the norms of amortization in the form of special correctives to the most wide-spread (typical) characteristics of buildings.

The outlined classification of buildings should be made more specific upon consideration of the peculiarities of various branches of industry and agriculture in conformity with the peculiarities of groups of branches having similar technological processes (ferro-metallurgy, non-ferrous metallurgy, coal, oil, gas, power, chemical, timber and paper, building, light and food branches, machine-building and other branches of industry). Afterwards it is necessary to work out new norms of amortization for capital construction and capital repairs, differentiating these norms in conformity with the system of work-shifts (with the exception of the auxiliary buildings, for which the norms of amortization have to be based on three shifts of work).*

The second group of basic funds, the classification of which demands a more precise definition of charges for amortization is construction. Construction, just as buildings, can be classified by the type of construction (for instance, starlings of regular or heavy type) the type of material (for instance, wooden, concrete, ferro-concrete bridges) etc. But much construction of the same type made of the same material exists in different surroundings and requires different norms of amortization. Therefore the classification of construction by type and material used is not adequate. A much broader classification is necessary for groups with equal norms of amortization. For instance, construction in the coal industry could be subdivided into coal pits, galleries, drifts, cross-cuts, underground chambers, rakes, slopes, coal bunkers, etc.

Compiling the list of groups of similar objects by a number of branches with similar technological processes and working out new amortization norms are the first steps in building a new classification of construction for charging amortization. Afterwards it is advisable to combine construction with equal or almost equal norms of amortization into general groups (such as was done in the 1930 classification), but specific differences among different branches must be considered.

The greatest difficulties in transforming classifications by types arise in relation to the group of machines and equipment for production. The basic funds which belong to this group are extremely diversified, even in one and the same branch. That is why it is especially important to select groups of objects with equal norms of amortization within the limits of each complex of branches with similar technological processes. For instance, among groups using similar goods in machine-building are: a) metal-cutting equipment; b) metal-pressing equipment; c) woodworking equipment; d) casting equipment; e) metallurgical equipment, etc. For each of these groups the norms of amortization for renovation and capital repairs have to be calculated. In some cases these norms have to consider differences in intensity of work and the number of shifts; in others they have to differentiate in conformity with the length of time of production; in the third — the volume of production must be considered; in the fourth — differences in complexity of goods and in expenditures for their capital repairs must be considered. For certain types of equipment, like thermic and drying furnaces, norms of amortization have to be considered on the basis of three shifts of work; sometimes the types of material of which the instruments of labor are made must be considered. After the norms of amortization are worked out it is expedient to combine different types of machines with equal or almost equal norms of amortization into general groups. The same should be done in respect to other types of basic funds: transmission devices; power-producing machines and equipment; other machines; means of transportation; tools and implements, inventory; technical libraries. Here one should observe that for a considerable number of basic funds belonging to these groups the norms of appropriations for amortization should be uniform on the scale of the entire national economy, for instance, for inventory, and — depending upon the specific types of the basic funds — should be differentiated on consideration of the intensity of work and the degree of its use by multiple shifts, the volume of work, the output, the regions of the country, etc. For instance, the norms of amortization in the automobile transport industry should be differentiated by the groups of automobiles, by the character of work, by the number of trailers, by the type of roads and by the regions of the country.

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* Certain types of buildings (as well as some construction and other types of basic funds) do not require capital repairs, for instance, temporary buildings.

The working out of a new classification for various branches of the national economy will allow improvements in the charging of amortization in the national economy and will further strengthen self-support in all enterprises of our country.

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lurgy enterprises in Ust Kamenogorsk will have to carry out large-scale designing work.

The tasks of further developing the economy of the ore-mining Altai require constant raising of the level of management in our region. The toilers of the Eastern Kazakhstan region will apply all their efforts in order to insure a new powerful growth of industry and construction, and they will utilize even more effectively the great natural resources of this economic region.

CRITICISM AND BIBLIOGRAPHY

I. Lebedev:

Development of Transportation and Communication in the USSR

Recently the Central Statistical Administration of the USSR Council of Ministers published a number of statistical collections. The collection "Transport and Communications in the USSR" undoubtedly is interesting for the study of specific problems.

In the USSR, with its enormous territory of 22.4 million square kilometers, transportation and communications have a particularly important meaning for the further development of the national economy.

At present our country is served by a well-developed and highly productive network of transport and communications, with the help of which transportation of freight and people is accomplished and messages are transmitted by telephone, telegraph, radio, letters and other postal communications.

The directives of the Twentieth Congress of the CPUSSR outlined an extensive program under the Sixth Five-Year Plan for the further development and technical reconstruction of all types of transport and means of communications on the basis of the most advanced techniques. The most important link in the technical reconstruction of railroad transport is electrification.

Data included in the collection under review show undeniable successes in the development of transport and communications. It contains materials on the development of all types of transport and communications in the USSR during the period 1913-1956. Certain basic indices of the work and utilization of transport and communications in the Union republics are included in the collection.

Data relating to transport are given in the sections: "Summary section," "Railroad Transport," "Maritime Transport," "River Transport" and "Automobile, Air and Oil Pipe-Line Transport."

In a specialist society all types of transport represent one unified transport system, the development of which is determined by the state plan for the national economy: The Summary section of the book is devoted to the work of this system.

The figures concerning freight turnover of various types of transport tell of considerable changes in the work of the unified transport system. The following table, compiled in accordance with the materials of this collection, shows the steady growth of freight turnover on all types of transport.

This table shows that the freight turnover by auto and oil pipe-line transport developed especially rapidly. These types of transport were almost completely created during the years of Soviet power. The freight turnover by railroad transport increased very considerably and freight turnover of sea and river transport increased at a much slower tempo. As the result a radical change took place in the proportions of different types of transport in the network of the country compared with the pre-revolutionary period. Unfortunately, the data published in the collection do not answer the question about the basic causes for lowering the share of maritime and river transport in the total freight turnover.

types of transport	freight turnover in 1956 (in bil. of ton km.)	growth of freight turnover in 1956 (no. of times compared with turnover in		share of different types of transport (% of total)		
		1913	1940	1913	1940	1956
railroad	1079.1	16.0	2.6	57.4	85.1	83.0
maritime	82.4	4.2	3.5	17.4	4.9	6.3
river	70.2	2.5	2.0	24.8	7.4	5.4
motor	48.5	485.0	5.5	0.1	1.8	3.7
pipe line	20.5	65.0	5.4	0.3	0.8	1.6
total	1301.0	11.0	2.7	100.	100.	100.

One should note that the data published in the collection on freight turnover and on freight transported by sea-transport do not reflect the real situation quite correctly. They characterize only the work of the domestic fleet, and do not consider the work of chartered sea-going ships.

The figures given by the collection also show the uninterrupted growth of the movement of passengers on the unified transport system. In 1956 it amounted to 176.8 billion passenger-kilometers. This was 6.4 times more than in 1913 and 1.7 times higher than the level of 1940. Exceptionally rapid was the growth of passenger traffic by air and automobile. (In 1956 the movement of passengers in these types of transport increased 18 and eight times, respectively, if compared with 1940.) But railroad transport in 1956 still played the leading role in passenger traffic. Its share was four-fifths of the total, while the share of air and automobile transport was only one-sixth of total passenger traffic. The absolute figures of passenger traffic by air transport are not given in the collection. Therefore one cannot judge what share air transport occupied in total traffic.

The Summary section lists the number of workers in transport, but the authors of the collection unfortunately limited it to indices of railroad, maritime and river transport as of 1950. From the footnote to the table "Number of Workers in Railroad and Water Transport" on page 22 it follows that the number of workers of different categories on railroad, maritime and river transport differ. The difference in the composition of workers leads to a contradictory situation: when calculating the common index of productivity of labor (by dividing the given number of ton-kilometers by the average number of workers on the muster-roll) the indices prove to be not quite comparable.*

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* On page 23 of the collection it is said that the cited ton-kilometers on the railroad, maritime and river transport are the index, characterizing the total volume of work performed on the haulage of freight and passengers; for the purpose of calculation one passenger-kilometer is considered equal to one ton-kilometer.

The index of labor productivity is one of the most important qualitative indices of the labor of every enterprise. In the Summary section of the collection data are published on the tempo of growth of labor productivity of workers occupied in rail, maritime and river transport from 1936 to 1956. These data testify to the considerable increase in labor productivity of the indicated categories of workers; for instance, labor productivity of railroad workers increased in 1956 compared with 1932 2.6 times, and compared with 1940 — 1.7 times. In maritime transport labor productivity increased by 1.4 and 1.5 times as compared to 1932 and 1940; and in river transport — 1.6 and 1.5 times as compared to the same dates.

Data on the cost of shipments by railroads, maritime and river transport are given for years 1950-1956. These data show considerable decreases in the cost of shipments. Thus, the cost of one ton-kilometer in 1956 was 3.705 kopeks (29% less than in 1950); of maritime shipments — 2.67 kopeks (decrease of 29%); of river shipments — 3.41 kopeks (decrease of 17%). In the footnote to the table "Cost of One Ton-Kilometer in Railroad and Water Transport" (page 24) the compilers of the collection indicate that in the cost of haulage of freight by railroads all the exploitation expenditures connected with haulage are included; for maritime transport expenditures on maintainence of the port and traveling property are not included in the cost; and for river transport expenditures on maintainance of traveling property are excluded from the cost of shipments. Thus, the indices of cost on different types of transport are not quite comparable. This is also explained by the fact that in the expenditures of labor on different types of transport, as indicated above, different contingents of workers are considered; this is reflected in the level of productivity of their labor.

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The materials of the section "Railroad Transport" testify to the growth and improvement of the material-production basis of railroad transportation, the increase in the number of shipments, and steady improvement of all the indices representing utilization of rolling-stock during the years of Soviet power.

The length of railroads under the jurisdiction of the USSR Ministry of Ways of Communication in 1956 amounted to 120.7 thousand kilometers, i.e. 2.1 times more than in 1913. The freight turnover increased 16 times during this period and the passenger turnover six times. As the result, the density of haulage per kilometer of the total length of the railroads in 1956 was nine million tons for freight (an increase of eight times compared with 1913), and for passengers — 1.2 million persons (2.7 times more than in 1913). As a matter of comparison, the density of haulage of our railroads was more than three times as heavy as that in the US.

As a result of the considerable growth of the railroad network of the USSR in 1956 there were 5.4 kilometers of track per 1,000 kilometers of territory, against 3.2 klm. in 1913, i.e. 1.7 times more. As the result of industrialization of the country, the proportional weight of most important industrial freight now is considerably higher. For instance, the share of coal, coke, ferrous metals, ores, oil, timber and mineral building-materials in 1956 was 76% while in 1932 it was 64%.*

During the years of Soviet power the average distance of shipments of freight over the railroads increased from 496 kilometers in 1913 to 787 kilometers in 1956, i.e. 1.6 times. It must be noted that the collection omitted data for 1913 on the length of shipments of ferrous metals and ores, and data for 1913 and 1928 on shipments of mineral building-materials. Therefore it is not possible to judge which type of freight resulted in the increase in the average distance of haulage during the years 1913-1956.

The indices of departure and arrival of freight are given for 1913-1956 by Union republics. No data are given on distribution of freight shipments by lines and distance zones or on the density of shipments by railroad lines. All this considerably decreases the possibility of more profound analysis of freight movement in our country.

The following table, compiled on the basis of material given in the collection, proves the enormous changes in the structure of passenger turnover on the railroads:

	1913	1940	1956	increase in 1956 (no. of times) compared with	
				1913	1940
turnover of passengers in all types of transport (bil. of passenger-km.)	25.2	98.0	142.4	5.6	1.5
suburban	1.5	24.7	32.5	21.0	1.3
% share of suburban	6	25	23	-	-
av. distance of passenger trips by all types of transport (in km.)	136	73	86	0.6	1.2
suburban	26	25	23	0.9	0.9

These data indicate clearly the tendency characteristic of railroad passenger traffic during the years of Soviet power; more rapid growth of suburban traffic, as compared with total growth, and, as a result a sharp increase in the share of suburban traffic and lowering the average distance of trips.

The number of passengers transported by the railroads is given only for the years 1940-1950 and for the Union republics only; lack of indices of passenger distribution by distance zones limits considerably the possibilities of more profound analysis of passenger turnover by the railroad industry.

The data published in the collection serve to show the systematic increase in the level of the average indices of utilization of railroad rolling stock (static loading of cars, average time for their return, average daily run, commercial and technical speed, the weight of the train). The most important of these indices — average time of return of a freight-car — allows the following conclusions to be drawn: first, the average time for return of a freight car in 1956 was 151 hours, i.e. 14% less than in 1940; secondly, the specific gravity of the run of the car increased in 1956 to 21% compared with 18% in 1940; third, the time of demurrage for various reasons was still over four-fifths of the total time needed for the return of the freight car. This indicates that in the struggle for decreasing the demurrage of freight cars there are still great unutilized reserves.

Of great interest are data on labor productivity and the number of workers in railroad transport. By 1956 the total volume of work performed increased 13 times, while the number of workers occupied in transportation increased only three times. Thus, the performance per worker in 1956 was 617,000 accounted ton-kilometers, i.e. was about five times higher than in 1913. When analysing the data on labor productivity of workers in railroad transport during the years 1913-1956 one must consider certain shortcomings in the method of planning and calculating the index. As was stated, in calculating one accounted ton-kilometer, one passenger-kilometer is considered equal to one ton-kilometer. This results because as an average for the network the cost of one passenger-kilometer is considered equal to the cost of one ton-kilometer. This was correct several years ago, but now conditions have changed. Thus, in 1956 the average cost of one passenger-kilometer was almost twice the cost of one ton-kilometer. Introducing a proper adjustment would lead to certain changes in the levels of the indices of labor productivity of workers in railroad transport for 1913-1956. On the other hand, this would also change the correlation between indices of labor productivity of workers on railroad transport and other types of transport.

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* For earlier years no data are given in the collection.

The data in the collection on the average length of time for delivery and the speed of movement of freight, as well as on the average time that freight remains on the station of destination are very indicative. These data, given for the least favorable month of railroad work — February — and the most favorable month — September — of 1950, 1955 and 1956, show first, that the delivery of freight during this period became more rapid (in September 1956 the speed of delivery by all types of transport was 147 kilometers per day against 127 kilometers in September 1950, i.e. it increased 1.2 times); second, the seasons do not affect railroad work as much as before; if in 1950 the difference in time for delivery in February and September was 1.2 days, in 1956 it shortened to 0.6 days.

The data in the collection permit the conclusion that the larger shipments move more rapidly than the average speed of delivery of freight. Thus in September 1956 the speed of moving one shipment was 278 kilometers per day in express-goods trains, while the average for all types of transport was 147 kilometers. In other words, the speed of express-goods trains was 1.9 times higher. From the tables one can also see that the average speed of delivery of freight sharply increases with the longer distance of haulage. If we take as 100% the average speed of delivery of freight 300-399 kilometers in September 1956, then the average speed of delivery on distances of 1,000-1,199 kilometers would be 197% and on distances 2,800-2,999 kilometers 392%.

The data given in the book on the loading and unloading of railroad transport show that the level of mechanization of this work on the railroads in 1956 was 68%, compared with 55% in 1950.

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Materials given in the section "Maritime Transport" show the success achieved in this branch of national economy.

The freight turnover of maritime transport amounted in 1956 to 44.5 billion ton-miles, i.e. 4.2 times as much as in 1913. It is interesting that the average distance of transportation of one ton of freight showed little change during this period (772 miles in 1913 and 771 miles in 1956). Therefore the rate of growth of freight turnover and of freight transporation during this period was unchanged.

Passenger turnover on maritime transport in 1956 was 740 million passenger-miles, i.e. it increased 1.3 times compared with 1913. Because the average distance of transportation of one passenger decreased from 162 miles in 1913 to 90 miles in 1956, i.e. 1.8 times, the tempo of transporting passengers in 1956 compared with 1913 was four times higher than the tempo of growth of passenger turnover.

The structure of freight via maritime transport is characterized by a decrease in the share of liquid freight (from 63% in 1940 to 43% in 1956) and an increase of the share of dry freight, including timber and fire-wood on barges. Of the total amount of this kind of freight in coastwise navigation in 1956 some three-fourths were occupied by coal, timber and fire-wood (on ships), ores, and mineral building-materials. Thus concentration of turnover of the most important freight is quite considerable.

The main indices of the use of sea-going ships (operational speed, utilization of freight carrying capacity, productivity per ton of the tonnage for one day of operation) for the period 1929-1956 were considerably improved.

There are no doubts about achievements in the field of labor productivity of workers in maritime transport: in 1956 there was a 3.4 times increase in ton-kilometers compared with 1932, and the number of workers occupied in transportation increased 2.2 times; therefore the productivity of each worker increased 1.5 times. The following figures tell about the enormous success in mechanization of loading and unloading of maritime transport: In 1933 the level of mechanization of these works was only 17.2%; in 1956 it reached 96.9%. In other words, almost all the loading-unloading work in maritime transport is mechanized.

The collection includes no data on distribution of freight by types of traffic (only shipments on coastwise traffic are singled out), no data on distance zones, main directions, etc. There are no materials on grouping passengers by types of traffic, distance zones, directions and territorial indices. All this reduces the possibility of an analysis of the work of maritime transport in our country during the years of Soviet power.

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In the section "River Transport" materials showing the development of this type of transport are given. The length of the navigable inland waterways in 1956 was 123,300 kilometers, i.e. 2.2 times more than in 1913. The USSR has the largest network of rivers in the world, with a total of 2,400 thousand kilometers, of which some 500,000 could be used for navigation; thus there are enormous possibilities for further increases of the inland navigable waterways.

The successes in developing river transport were characterized by considerable increases in the amount of transported freight (in 1956 about 4.5 times as much freight was transported as in 1913). At the same time the average distance of haulage decreased almost to half (in 1956 the average distance was 479 kilometers, and this was only 55% of the level of 1913). The freight turnover of river transport for 1913-1956 increased 2.5 times.

During the years of Soviet power the structure of river freight shipments changed considerably: in 1956, compared with 1928, the share of transported oil and oil products decreased from 26% to 10%; grains from 7 to 4%; salt from 4 to 1%. At the same time the shares of haulage of timber and fire-wood increased from 45 to 49%, coal from 1 to 6%, mineral building-materials from 6 to 23%. Thus, in 1956 timber and fire-wood and mineral building-materials represented almost three-fourths of the total freight turnover via river transport. Similar concentration of turnover of certain types of freight was not observed on any other type of USSR transport. The number of passengers transported by river transport in 1956 was 7.3 times larger than in 1913, the average distance of trips made decreased almost three times, and the passenger turnover increased 2.5 times.

During the 1933-1956 period the level of the main indices of utilization of the river fleet for general use increased considerably (productivity of tugboats in ton-kilometers per horse-power, productivity of non self-propelled boats in ton-kilometers per ton of freight-capacity).

Some data on river transport are given by various enterprises; this is not available for other types of transport. These data show that two-thirds of the total freight turnover of river steamship lines are carried by five of the 19 lines (Volga Unified Line; Volga-Tanker; Kama; Dnieper and Moscow Lines). The level of mechanization of the loading-unloading work on river transport reached 93.1% by 1955 compared with 12% in 1913. This is a really enormous achievement.

In 1955 the volume of work performed by river steamship lines increased 2.4 times compared with 1932; the number of workers occupied on transportation increased 1.4 times, and productivity of each worker increased, in ton-kilometers, 1.7 times.

The data, given at the end of this section of the collection under review concerning river transport not in general use (i.e. departmental) show the growth of its role in haulage.

The data on river freight and passenger transportation are given in terms of Union republics. No data on the structure of freight turnover by types of freight are given in the book, though these data are of considerable interest. No data are included on the material-production base of river transport for non-general use.

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The statistical data of the section "Motor, Air and Oil Pipe-Line Transport" testify to great changes in the development of the material-production base and the work of the motor, air and oil pipe-line transport in our country.

The freight turnover of the motor transport of the USSR national economy in 1956 amounted to 48.5 billion ton-kilometers, i.e. it was 485 times larger than in 1913 (only 0.1 billion kilometers). It is interesting that the length of haulage for the same period increased only 1.1 times and was 11.5 kilometers in 1956. Therefore the tempo of growth of freight turnover and of haulage of freight differ only slightly. Unfortunately, the data on distribution of freight between intracity and inter-cities haulage are not given in the book.

The comparison of the levels of the coefficients of utilization of the existing fleet of motor vehicles (the number of functioning trucks in percentage of all vehicles) and of the runs of the trucks (runs with freight in proportion to total runs) in 1937 and 1956 shows that motor transport still is not utilized effectively enough.

Figures given on freight turnover for motor transport of the Union republics for 1940-1956 indicate first that freight turnover increased most rapidly in the Kazakh SSR; second, that in 1956 more than four-fifths of the total turnover was concentrated in the RSFSR, Ukrainian SSSR and Kazakh SSR, though the share of motor transport of the first two republics decreased during that period.

Analysing the productivity of truck transportation, the following conclusions are indicated. If the productivity of trucks (in ton-kilometers per each registered motor-ton) in a group of enterprises with 3-9 trucks is set at 100%, then in the groups of enterprises with a larger number of trucks this productivity increases sharply and reaches 186% in a group of enterprises with 100 or more trucks. This confirms the effectiveness of enlarging the fleet of motor vehicles in enterprises, as we are now doing.

The motor transport workers achieved certain successes in lowering the cost of transporting freight; in 1956 the cost of haulage was 48.7 kopeks per ton-kilometer, which is 33.8% less than in 1950.

The compilers of this collection should indicate that the cost of motor transportation does not reflect the road component (i.e. expenditures on roads). Therefore the cost of motor transportation cannot be directly compared with the cost of railroad transportation.

Motor transport of general use, which has certain advantages if compared with departmental motor transport, in particular in relation to the better utilization of rolling stock and lower cost of haulage, developed in our country in recent years much more rapidly than motor transport of the national economy as a whole. The freight turnover of motor transport of general use reached the level of 11,948 million ton-kilometers in 1956, and increased 45 times over 1940. During the same period the turnover of the entire motor transport industry increased only 5.5 times. The productivity of freight haulage by motor transport of general use increased in 1956, compared with 1940, almost twice. The material in the collection testifies that centralized transportation of freight by motor transport is one of the most effective methods of shipment. In 1956 it increased 1.8 times compared with 1955. Its share reached 40% of the total freight turnover of this type of transport.

The passenger turnover by autobuses of general use in 1956 was 26.4 billion passenger-kilometers. This was 7.7 times more than in 1940. For the same period the number of trips increased 9.3 times, and their average distance decreased 16%. The average daily run of each autobus in 1956 was only 17.8 kilometers per hour (14% more than in 1940). Consequently, there are considerable unutilized reserves.

During the period 1950-1956 the intra-city and inter-cities passenger transportation by autobuses of general use increased five times. Transportation (paid for) by taxi in 1940-1956 increased 14 times on freight, and eight times on passengers.

The collection includes materials on the length and structure of roads for automobile traffic. From these materials the following is indicated: first, the length of these roads with hard roadway was extended considerably and reached some 214.5 thousands of kilometers in 1956 against 24.3 in 1913 (a gain of 8.8 times). Second, the tempo of growth of roads with hard roadway lagged behind the tempo of growth of freight turnover by motors during all the five-year plans, with the exception of the third three years before the war). The proportion of natural cart-tracks still is very considerable.

Data concerning air transport are given in the form of relative dynamic quantities (tempo of growth). They show great accomplishments of civil aviation during 1940-1956. The length of airlines was extended 2.3 times during that time, the passenger turnover increased 18 times and the turnover of mail 14 times.

Considerable successes were achieved in developing oil pipeline transport. The length of oil pipe-lines in 1956 reached some 11.6 thousand kilometers, i.e. increased ten times since 1913. The pumping of oil and oil products increased 177 times by 1956 compared with 1913 and freight turnover increased 65 times. The data on freight turnover and oil and oil products pumping, shows that the average distance over which the oil and oil products were pumped decreased in 1956 compared with 1913. This is the result of the change in location of oil extraction in the country during the years of Soviet power.

In this section of the collection more than 50 tables and several diagrams are shown. But at the same time certain important indices are not included, in particular, the structure of freight shipped by motor transport of general use, the number of workers and labor productivity on the base serving this transport (garages, repair shops, etc.), the cost of transportation by air and the cost of pumping oil and oil products.

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In the section "Post, Telegraph, Telephone Communication and Radio Service in the USSR" data are found on the total number of enterprises of post, telegraph and telephone. In 1956 there were 57,000 of these enterprises; this was 7.5 times more than in 1913. Of this number more than four-fifths were in rural communities in 1956.

During the period 1913-1956 the number of letters sent increased 6.3 times, the number of parcel post packages — 7.8 times, money orders — 7.6 times, periodicals — 29 times, and telegrams — 5.7 times.

The average yearly number of workers and other employees of the communication services in 1956 was 1.2 times larger than in 1950. Materials on the distribution of communication enterprises among the Union republics tell of preeminent growth in the republics situated in the East of the country. The sharp concentration of postal transactions and telegraph and telephone communications in the RSFSR, Ukrainian SSR, Bielorussian SSR and Kazakh SSR deserves attention.

Exceptionally rapid was the development of the new type of communications established during the years of Soviet power — radio. In 1928 there were 179 radio centers in the country, in 1956 there were 35,243. In the period 1932-1956 the number of radio receiver sets increased 21 times, and the number of broadcasting stations increased 16 times.

In order to characterize more completely the development of communications during the years of the Soviet regime, the compilers of the collection should give some additional data. In particular, they should include figures on the length of cable for telephone-telegraph use and its proportion to the total length of lines; data on lowering the cost of post and telegraph communications and inter-cities telephone messages; and on the improvement of the communication services (shortening the time for postal delivery, etc.).

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There is no doubt that this collection "Transport and Communications in the USSR" will be very useful for our propagandist and scientific cadres, especially because for a number of years there were no such publications.

At the same time one has to express the wish that in such collections data on capital investments for various types of transport and communications, on changes in the value of their basic funds, as well as more detailed material on the introduction of new technique in these branches of the national economy will be included. In addition to indices in terms of Union republics, data should also be included in terms of economic administrative regions.

N. Orlov:

A Textbook on New Branches of Soviet Financial Science

A. M. BIRMAN. "Finances of the Branches of the USSR National Economy," Part I, 1953, 236 pages.
A. M. BIRMAN. "Finances of the Branches of the USSR National Economy," Part II, 1957, 320 pages.

The grandiose problems of communist construction outlined by the 20th Congress of the Party, and the reorganization of industrial and construction management carried out by the CPSU and the Soviet Government, posed new problems in economics. N. S. Khrushchev declared at the 20th Congress: "In the struggle of our society for high labor productivity, and the solution of the basic economic problem of the USSR, the economic aspect of Marxist theory, the specific problems of economics, are coming to the fore." In particular, a profound study of the financial aspect of socialist enterprises and branches of the national economy acquire growing importance. This is the subject of a new branch of Soviet financial science — finances of the USSR national economy.

The work under review is the first attempt to reveal the essence of branch finances as an organic part of the whole Soviet system of finances, to describe the principles of its organization in relation to the two forms of socialist ownership, and to enumerate practical problems in the field of finances of the branches of national economy.

The difficulties connected with originating a course on finances of the branches of economy are clear. A. Birman succeeded considerably in overcoming these difficulties and illuminating in his relatively small book theoretical questions and the practical financial activities of enterprises.

This textbook is composed of two parts. In part one the author discusses the essence of finances, principles of organization and problems of finances in branches of the national economy. All general questions are discussed in relation to the leading branch of the national economy — industry. The second part of the book is devoted to the finances of other branches. The peculiarities of different branches are shown, along with the special approach to organizing finances in different branches. This plan of the work is correct, for it avoids repetition.

The first book of A. Birman on branch finances appeared in 1953. It was reviewed by D. Kondrashev ("Finances of the USSR," No. 7, 1954) and by S. Pevsner ("Problems of Economics," No. 4, 1955). In these reviews a number of observations and recommendations were included which undoubtedly helped the author in his work on the second part of the book. These reviews also included some debatable notions. In characterizing the book the reviewers failed to note the most important thing: they did not analyze Birman's definition of the essence of branch finances of the national economy. "In the Soviet economy a broad system of monetary relations exists arising from the formation, distribution and utilization (spending) of monetary resources... The monetary relations of branches of the national economy in their aggregate characterize the financial aspect of production and form the finances of branches of the national economy of the USSR" (Part I, page 11). But in the recently published collection "Problems of the Theory of Finances" (1957) A. Birman presented a more clear-cut formulation of the definition of the essence of finances: "The aggregate of monetary relations which exist in branches of the national economy arise in the process of production and serve this process, constitute the finances of branches of the national economy of the USSR" (page 109).

The definition of the essence of branch finances as a system of monetary relations basically is correct. Some economists are inclined to reduce the financial work of enterprises to technical operations connected with receiving and spending money. Other economists consider finances (including finances of enterprises and different branches) as the sum total of monetary funds. This definition of finances understates their role, and reduces the task of financial-credit organs to issuing and receiving money; their real task is to exercise control over the activities of enterprises with the help of the ruble. The definition given by A. Birman of branch finances as the aggregate of monetary relations allows their role in the national economy to be seen more adequately.

In his treatment of the essence of branch finances the author arrived at his conclusions on the basis of analyzing concrete material, and studying monetary relations, existing in the national economy. In formulating the basic theses on branch finances, A. Birman stressed the unity of finances in the national economy of the USSR, and showed that finances of socialist enterprises and branches of national economy are an organic part of the entire Soviet system of finances. Material production results in the creation of the aggregate social product and its most active part — national income. As 90% of all production funds in our country are state property, the dominant role in the system of finances in the branches of the national economy is played by state enterprises and organizations.

In characterizing branch finances, the author shows their interdependence with the most important part of state finances—the USSR state budget. Annual revenues of the state budget stem mainly from receipts from socialist enterprises. At the same time the budget has an organizing role in relation to branch finances. Unfortunately, this question is discussed very little. Thus, the reader does not get sufficient material about the relation and interdependence among branch finances and state finances.

The presentation of the essence and principles of organizing finances in branches of the national economy deserves praise. Our economic literature usually discusses the finances of different branches as the sum of static quantities (circulating funds, profits, costs of production etc.); the interrelation among them is not always clear. In contrast, A. M. Birman shows the resources of enterprises not statically, but in circulation: the advancing of funds, their productive use, the forming of income and accumulation, and their utilization. This method allows for a better understanding of the essence and interrelation among economic processes of enterprises and in branches of the national economy.

A number of theoretical theses also appear characterizing various aspects of the financial activity of enterprises and branches. For instance, the author states that in striving for the highest form of profitableness in our national economy, one should not neglect the profitableness of individual enterprises and branches. "The profitableness of individual enterprises and branches has enormous significance for socialist production. It must be considered in planning. The struggle for profitableness in every individual enterprise, in every branch is the most important problem of economic activity at the present stage of socialist development" (Part I, p. 25).

Pointing out that every enterprise pays from net income for social insurance, local taxes and fees and interest for credit, A. Birman writes: "After deduction of these payments net income forms the monetary accumulation of the enterprise (branch). It should not be confused with accumulation in the national economy which is expressed by the increase of fixed and circulating funds and state reserves" (Part I, page 70). In our economic literature the term "accumulation" is understood in different ways. Very often this term is used (as one can see from the above quotation) to describe profits received by socialist enterprises. In our opinion this is wrong.

The second edition of the textbook on political economy states: "Socialist accumulation is the utilization of a part of the net income of society; it is composed of means of production and of consumption goods for expanding production, for forming reserves of materials, and for increasing funds for non-productive, social-cultural uses" (page 577). This is the correct treatment of socialist accumulation; the profits received by enterprises should be described by some other term.

The author's posing of the question of the independence of money circulation in relation to the circulation of material values in the process of production deserves attention. Our economic literature gives little attention to this problem. One of the advantages of our financial-credit system is the direct connection between the circulation of money and the circulation of material values in the process of production. But, "limited independence of money circulation in relation to the circulation of material values (expressed in money) allows money to influence production, prompting enterprises to lower the size of the constant reserves, to speed up production and sale to perfect calculations, etc" (page 105).

The second part of the book reveals the peculiarities of the organization of finances in different branches of the national economy (except industry). This method of presenting the material is conditioned by the following: "Although the Soviet system of finances is unified, the way finances function in each branch of the national economy is unique in various respects, determined by the peculiarities of the economics and organization as well as by problems which are solved by each branch at given stages of development of the socialist economy" (Part II, page 3). The author centers his main attention on revealing the essence of finances in the basic branches of various spheres of production. For instance, the finances of railroad transport are discussed in more detail than finances of other types of transport. This method of discussion allows this relatively small book to present a sufficiently complete picture of the organization of finances in various branches. In both the first and second part of the book branch finances are discussed according to forms of ownership.

In the second part of his book A. Birman analyzes the finances of capital construction, agriculture, transport and communications, organs of material-technical supply, procurement and trade, housing-communal economy, and road building and maintainance. It is the first time that a textbook presented the finances of organs of communication and procurement.

Brief descriptions of the economic peculiarities of every branch of the national economy (in comparison with industry) and the peculiarities of finances in each of these branches and the concrete forms of their organization are offered. This approach shows that the best form of influencing the economic activities of enterprises and branches in conformity with the peculiarities of their economic organization is to determine the specific forms of organizing self-financing. The most important theses are found in the second part of the book. In the section of finances of capital construction the question of costs of building and installations is discussed. Until now our economic literature incorrectly expressed "value of building and installations" to characterize expenditures of building organizations. This expression justified to some extent the practice which existed in capital construction of minimizing payments for work accomplished at the expense of economies achieved by building organizations. This practice undermined the stimulus to economize in building organizations. A new method of calculation has been established under which the economy achieved by the building organization in relation to estimated expenditures, counts for work accomplished and towards the task of lowering costs. The author rejects the wrong terminology and analyzes the costs of building and installation works and the factors which lower these costs (Part II, pages 17-29). Also, the question of the accumulation of money in building organizations is discussed (Part II, pages 46-47).

A. Birman pays special attention to the new tasks which arose in agricultural finances from the abolition of subsidies to state farms (the necessity of increasing profitableness), the introduction of a new method of planning in agriculture, the establishment of advance payments for labor of collective farmers, etc., all of which was designed to secure a sharp rise in agricultural production. The necessity of lowering costs of production and decreasing the cost of the products of collective and state farms are stressed; the experience gained by some agricultural enterprises is reflected in the book.

The author shows that in the transport and communications branches no new material product is formed, and that money is received as payments for work performed. Thus, the entire system of settling accounts between producer and consumer is changed and predetermines the special forms of control by the state over these account settlements.

In discussing the peculiarities of finances in every branch of the national economy A. Birman stresses that the economic peculiarities of each branch influence its finances, which, in turn, influence the economic life of branches of the national economy. Recommendations are included for further improvements in the financial activities of enterprises.

The erroneous interpretation of the essence of finances and of their role in the process of large-scale reproduction, the artificial reducing of financial work to the technique of receiving and allocating resources, and accounting and recovering debts led to a situation where "many financial workers of industrial enterprises were punctually writing bills and demanding payment of debts on time; however, they failed to see that the national economy was annually losing billions of rubles because of inadequate specialization in enterprises, defects in cooperation, the fabrication of many products which became antiquated, and production carried on by out-dated methods. The financial workers of building and planning organizations did not fight against plans which neglected the indices of profitableness, extravagance in architecture, over-expenditure of metals and against the multiplicity and fractional character of building offices" (Part II, pages 310-311). Such defects in industry, construction and other branches of the national economy show that the problem of correctly understanding the essence of finances in branches of the national economy and the tasks ahead, not only has a theoretical significance but is immediately connected with the direction of the whole practice of financial work in enterprises and branches of our socialist economy.

"The resolutions of the plenary sessions of the Central Committee of the CPSU and the 20th Congress of the Party" — writes the author — "demand directing financial work toward the most important task — influencing the process of production and realization, striving for increased profitableness in the national economy and for increasing production. Observance of estimates of production expenditures, lowering the cost of circulation, speeding the turnover of resources and lowering costs of production — these are the main tasks in financial work" (Part II, p. 311). Then, the author enumerates such important features of the financial activity of enterprises and branches as extending the sphere of credits for the introduction of new techniques and mechanization, improving the practice of financing capital construction and capital repairs, intensifying control by the ruble over scientific research work and introducing achievements of science and technique into practice. The great significance of the effective utilization of the enormous resources appropriated for training and re-training cadres and for spreading and introducing more advanced experiences are underlined in the book. So also are the intensification of control by the ruble over the proper utilization of wages funds and securing the material personal interest of the participants in production in the results of labor.

A. Birman writes: "Financial tasks should be based on the complete utilization by enterprises of the instruments of labor assigned to them. In many cases, when planning the cost of production, accumulation and circulating means, the actual totals of the past year or quarter are taken as the basis without critical analysis of those totals. The result is that unjustified reserves are created in financial plans and the resources of the state are diminished" (Part II, p. 312). The meaning of all these financial measures is growing clearer because of the change in the system of management of industry and construction and because of the extended power of enterprises working on the basis of economic self-support.

Certain defects of the book also should be noted.

In analyzing the finances of branches of the national economy it is of great importance to give a definition of the essence and also of the functions of branch finances. While stressing properly the enormous organizing role of finances in improving the economic activities of individual enterprises and of branches of the national economy, the author at the same time narrows somewhat this role, naming only one function of branch finance — namely control by the ruble. Undoubtedly this function is very important, but it does not by far exhaust the role of branch finances as a powerful economic lever. Although the question of the functions of finance is not fully solved, at least two more functions can be named which are not listed by the author. In the system of monetary relations, the finances of branches, aside from the control by the ruble, are expected to: 1) secure the turnover of means in the enterprise by means of money, and 2) to promote proper distribution, receipts and accumulation of money.

Practice shows that an inadequate supply of money in enterprises leads to various difficulties in carrying out work, reflecting not only on the organization of a given enterprise, but also on the organization of other related enterprises. Further, lack of coincidence of the dynamics of monetary resources with the dynamics of material resources can lead to a situation where some shortage of means in the enterprise is discovered but is offset by bank credit. At present the norms for circulating means which are intended for creating productive reserves of materials are increasing in order to stabilize the work of the enterprises. In the budget of 1957 15 billion rubles was allocated for this purpose, including 9.2 billions for industry. This again demonstrates that great emphasis should be placed upon proper determination of the monetary needs of the enterprises, normalizing the means of circulation, collecting money assigned to enterprises on time (timely writing of bills and recovering of liabilities, etc.), utilizing means of production more rationally and repaying bank credits.

Not less important for enterprises engaged in large-scale socialist reproduction is the proper distribution of income and accumulation in the national economy. Experience in developing a socialist economy has proved that leaving part of net income at the disposal of enterprises and utilization of this part of net income for the expansion of production, improvement of cultural and communal conditions and material encouragement of the workers of the enterprises results in transferring part of the net income to the state in the form of taxes from turnover and appropriation from profits. This strenghtens economic self-sufficiency in the national economy, and rapidly creates and develops the most important branches of a socialist economy with resultant steady improvement in the material and cultural standard of living of the working people. This system secures the greatest profitability in the development of the national economy.

It is a shortcoming of the book that the functions of finances in the branches of the national economy are treated too narrowly. Although the author mentioned in passing the above aspects of financial activity of enterprises, he did not discuss them as special functions.

Another shortcoming of this work is that the author, although defining correctly the essence of branch finances as the aggregate of monetary relations and objecting to limiting financial work to receiving and distributing monetary resources, runs to extremes. He does not pay enough attention to such questions as debits and credits, the financial position of enterprises and organization of operative financial work. Discussion of these questions would not contradict the author's treatment of the essence of the branch finances. The finances of the branches of the national economy, being a system of monetary relations, have as their purpose the planned formation and utilization of funds of monetary resources in the interest of individual enterprises and the entire national economy. In the process of formation and utilization of these monetary resources the indissoluble unity of the functions of finances in the branches of the national economy is revealed.

Another shortcoming of the book is that the financial activity of enterprises is discussed in general, but financial work in the highest echelons of management — economic councils, committees, ministries — is shown only sketchily; however, these organs have the right to interfere to a certain degree in the financial activity of enterprises subordinated to them, and in particular can withdraw some of their circulating means and profits for redistribution in the system. Thus, the reader does not get a thorough understanding of the finances of branches of the national economy. This aspect of the finances of branches of the national economy should be shown more adequately.

It was pointed out already that the author touched only very superficially on the interrelations and interaction of branch finances and state finances. The author paid little attention to the role of the budget and of credit in influencing the finances of enterprises and branches in the national economy. But without a discussion of the influence of the budget and credit an analysis of branch finances in the national economy cannot be complete.

Finances of branches of the national economy is a new field. Not everything is clear in the definition of the essence of their relations to state finances; and many debatable questions remain. But, a theoretical generalization of financial practice, and scientifically substantiated recommendations for improving financial work in socialist production is urgently required.

The USSR Ministry of Higher Education acted correctly, in our opinion, in having recommended both parts of the work by A. Birman to be used as a textbook. There is no doubt that the book "Finances of the Branches of the USSR National Economy" by A. Birman will be useful for students and practical workers.

V. Karymov:

Struggle with Rightists in the Field of Economic Theory in China

(From the pages of the Chinese press)

The struggle against right-wing bourgeois elements which developed in China more than six months ago is in content the socialist evolution on the political and ideological fronts. It is the necessary continuation of the socialist revolution in the field of production-relations, completed in essence in 1955-1956.

In his speech at the jubilee session of the Supreme Soviet of the USSR Comrade Mao Tse-tung said: "There is in China a small bourgeois right-wing element which attempts to speak against the socialist way, against the leading position of the Communist Party in the life of the state, and against the close union of China with the Soviet Union and other socialist countries. Their reckless plans were completely defeated by the counter-blow of the entire Chinese people."

Having started the struggle against the building of socialism and against the Communist Party of China, the right-wing elements placed themselves in the position of enemies of the people, enemies of socialism, dreaming to return the country to the capitalist road of development. The ideological attack of the reactionary bourgeois right-wing elements was one of the main links in their broad plans for the restoration of capitalism in China.

The struggle against the right-wingers is the struggle of two roads of development of China — capitalist and socialist. It is carried on in all fields of economic, ideological, cultural and political life.

In the magazine "Economic Investigations" the class content of this struggle is thoroughly revealed: "These are not only the declarations and opinions of the numerically insignificant right-wing elements; they represent, in essence, a well-composed system of opinions of the bourgeois class, the moribund class, a part of which is trying to resist its fate.

Some intellectuals and petty-bourgeoisie succumbed to the ideological influence of the right-wingers. That is why a serious and profound ideological and theoretical struggle is necessary. (1)

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In their general attack on the Party, and on socialism, the right-wing elements directed their main blow against the ideology of the working-class — Marxism-Leninism, in order to disarm ideologically the working people and to prepare thereby conditions for the restoration in China of the capitalist system.

Right-wing "theoreticians," now unmasked before the entire people as enemies of socialism and of the people's democratic order in China — Chan Bo-tsun, Lo Lun-tsi, Chan Nai-zi and others — were disseminating various "theories" about the degeneration of Marxism, its crisis, its inapplicability to Chinese conditions and its obsolescence and stagnation.

The fierce attack of the right-wingers was directed primarily against the main pillar of Marxist-Leninist teaching — the doctrine of the dictatorship of the proletariat. Because large-scale class struggles are essentially over in China, they said, the dictatorship of the proletariat should be ended as something obsolete and not corresponding to our historical period, not in accord with the "spirit of the times;" the leadership of the Communist Party should also be removed and replaced by a multiparty system, of the type seen in bourgeois countries.

Slandering the political regime of people's China, Chan Bo-tsun asserted that the dictatorship of the proletariat is a medium of "three evils": bureaucracy, sectarianism and subjectivism. Another right-wing "theoretician," Chen Jen-han, wrote: "One cannot say that the socialist system is cultivating bureaucracy, but they are closely related... In order to eliminate bureaucracy the motive force of socialism must be liquidated — socialist ownership." The motive force of humanity, he continued, is the pursuit of profit. We should return to free capitalist competition.(2)

Hatred for socialism, for a people's regime — is the basic trait of all rightists, whenever they approach any aspect of the life of new China. Fighting against the dictatorship of the proletariat and the economic regime of socialism, the right-wingers attempted to undermine the basis of the peoples' power in China, the union of the working class and the peasantry, and they destroy the socialist system.

Mao Tse-tung in a speech delivered on February 27, 1957, at the 11th session of the Enlarged Supreme State Council said: "The class struggle still is not over. The class struggle between the proletariat and bourgeoisie, the class struggle between different political forces, the class struggle between the proletariat and bourgeoisie in the field of ideology remains a protracted, complex, and some times very bitter struggle." (3)

Economic programs played an important role in the plans of the reactionary bloc of conspirators led by Chan Bo-tsun and Lo Lung-tsi. "It was by their order" — said the editorial in the newspaper Tsintsi yantsu —"that a group of professors headed by Chen Jen-han (of Peking University) prepared its program document named 'Observations on the Present Situation in the Field of Economics.'"(4) This is the "credo" of the rightist bourgeois scientists-economists; it is part of the broad political program of the reactionary bloc of Chan Bo-tsun and Lo Lun-tsi, the program of struggle against the Communist Party and the socialist system in China and the theoretical foundation of the so-called "Institute of Political Projects." According to the plan of Chan Bo-tsun the "Institute of Political Projects" was to play the leading role in the political life of the country.

This document and other declarations of the right-wing bourgeois economists were discussed at a number of meetings at the CPR Academy of Sciences. As these discussions and many articles on the same topic published in the Chinese press show, the plans of the rightists in the economic field had far-reaching political aims.

In the magazine "Sintsian-she" Comrade Lin Li-fu gave the following evaluation of this "scientific" program: "The political aims of the rightists in the field of economics, prepared by Chen Jen-han, are an attempt to change the political direction of economics and economic construction so as to prepare for the destruction of the dictatorship of the proletariat and for restoration of capitalism in our country." (5)

A number of articles by Chinese comrades show that this program expressed the strategic line of the right-wingers. Their tactics are: first to revise Marxist-Leninist economic theory in order to replace it by bourgeois political economy, particularly with Keynesianism; second, to discredit the economic policy of the Communist Party and all financial-economic measures of the people's government; third, to constantly attack and defame the Communist Party so as to end the leading role of the Party both in economic theory and practice.

Under the banner of a struggle against dogmatism, under the pretense of struggling for the improvement, renovation and filling in of "soft spots" supposedly formed in Marxist-Leninist theory after the death of Lenin, right-wingers attempted to revise Marxist-Leninist political economy. Chen Jen-han and his followers consider this "soft spot" to be the whole Marxist-Leninist political economy of socialism. In their "Observations" they wrote: "There is no theory of socialist political economy... That section is empty... The classics of Marxism did not show us any absolute laws of building socialism. Therefore we move blindly, by touch, only copying the Soviet model. Our economic policy wallows in subjectivism, is not following any objective laws, and we actually do not know what objective laws to follow... Our economic planning is a mixture of dogmatism and practicalness." From this the rightist bourgeois elements conclude that serious errors exist in the economic construction of China, supposedly causing great damage to the national economy. The Communist Party of China and its leaders supposedly "do not know the objective laws, have no respect for science, and regard the directing of economic life as a game." (6)

In coming forward with such slanderous inventions, Chen Jen-han and other rightists ignore the enormous achievements of socialist construction in China, and reduce to naught the gigantic work performed by the people and the Party for reorganizing capitalist industry and trade, agriculture and cottage industry. They attempt to discredit the economic policy of the Communist Party and the activity of its leaders.

The historical achievements of China in building socialism are widely known. It will suffice to indicate that for the first five years (1953-1957) the country produced 16.3 million tons of steel, while during 1900-1948, i.e. in 48 years, only 7.6 million tons of steel were produced. Enormous successes were achieved in agriculture and in raising the people's living standards. "How could the Party organize the scattered masses into mighty ranks, and lead the Chinese people towards such great victories if it did not know the objective economic laws and the laws of the development of society?" asked Sue Mu-tsu. (7)

The facts show that the Communist Party of China is skillfully applying objective economic laws of socialism. By creatively applying Marxist-Leninist theory, the Chinese Communists are successfully transforming the economy and culture of the country. All this testifies to the wisdom of the Communist Party of China, creatively applying the objective laws of socialism to the specific conditions of China and to the correctness of the general line in the development of the national economy.

In speaking about "serious errors causing damage to the national economy" the rightists connect them with the "obvious gap between the practice of economic construction and economic theory."

Thus, the right-wing bourgeois professors pose a question in their "Observations" about "the possibility of using critically bourgeois economics." Their logic is very simple. The economic organism of China supposedly is very sick and the fault is Marxist-Leninist economic theory, which, in the opinion of the right-wingers, cannot serve as a theoretical compass in the economic construction of the state. "It ceased to be a science...and became a code of dogmas, and canons; the politico-economist Marxists became — monks, occupied only in cramming these canons." To "cure" the economy of the country, state the rightists, "only bourgeois political economy, with its many possibilities," (8) particularly the theory of the bourgeois economist Keynes, can be used.

"The possibility of utilizing bourgeois political economy" the rightists justify by claiming the necessity and usefulness of cooperation between Marxist economists and bourgeois professors. In the opinion of the rightists, bourgeois political economy must fill the gaps in Marxism, and help in solving concrete economic problems, which Marxist-Leninist political economy and the learned Marxists cannot do.

The absurdity of the right-wingers' assertions was brought to light by Comrades Sun Tao, Chan Yu-jen, Din Gu and others. They showed that the appeals of the right-wingers to utilize bourgeois political economy mean nothing but an attempt to "prove" the futility of using Marxist-Leninist economics in economic construction and thereby calling into question the correctness of the economic policy of the Chinese Communist Party.

Behind these seemingly innocent proposals of the rightists a shameless apology for capitalism is concealed. The aim of the rightists in recommending application to our conditions of Keynes' theory of the multiplier, said Comrade Din Gu, is to prove the vitality of capitalism which supposedly can exist for ever and needs only some adjustments.

The real aims of the right-wingers are, according to the Chinese press, an attempt to "dismiss" Marxist-Leninist political economy, as "worthless in a practical sense," to revive bourgeois economic theories, and to replace Marxism-Leninism with Keynesianism.

Covering themselves with the slogan of a struggle against dogmatism, the rightists declare that the theses of Marxist-Leninist political economy have lost their force under new conditions. As an example of an "out of date" theory the authors of "Observations" offer Marx's theory of value. "Gold is no longer a measure of the value of goods," they say, "and the role of the law of value in the circulation of commodities has no intrinsic connection with gold." (9)

Revealing the revisionist essence of the right-wingers' program, Comrades Huan Jun-siun, Tan Sho-tsi and Tsen Tsisiun pointed out in their article: "We have seen in history all kinds of concoctions about the theory of value and money; it does not matter which one of them the rightists prefer — the real aim of all these concoctions is one and the same — to deny the intrinsic value of money." (10) And the denial of the intrinsic value of money, they said further, leads to the denial of the connection between the value of a commodity and labor. Thus, the right-wingers deny the labor theory of value, which is the keystone of Marxist political economy.

But, the rightists also had another more specific aim. With their "new" theory of money they attempted to prove the existence of a "forced inflation," resulting from an "anti-scientific" financial policy of the state and the Communist Party. In this manner the rightists coordinate "theory" with practice.

Rightist economists are "developing" an economic theory that may serve their "revelations" concerning the national bourgeoisie and the character of fixed (hard) interest. They asserted that at the present stage of the socialist revolution the Chinese national bourgeoisie no longer has a dual character, and is becoming a progressive class free of greed and aspirations for profit. One of the "theoreticians" of the rightists, Chan Nai-tsi, who considers himself a Marxist, went so far as to say that exploitation by the bourgeoisie in China today has a progressive character, and that the bourgeoisie itself is becoming a consistently revolutionary class, a "red bourgeoisie." This "critic" declares that "the criterion for defining the character of exploitation should be such as to indicate if the exploitation retards the development of productive forces or promotes their progress." (11) To substantiate this "criterion" Chan Nai-tsi offers the following example. In the Old China exploitation by the landed gentry and comprador bourgeoisie was a hindrance to the development of the productive forces, while now the exploitation by the national bourgeoisie is a boon for the national economy.

Chan Nai-tsi and other rightists draw the following conclusions from their "theoretical" theses: there is no class struggle in China; the national bourgeoisie is no longer distinguished from the working class; private ownership is replaced by social ownership and the capitalists have become workers and receive wages as state employees. Althought exploitation by the bourgeoisie exists, it now has a progressive character; "hard" interest, received by private enterprise as a 5% return per annum, is not the result of exploitation, but is "something like interest on deposits or a special kind of remuneration." (12)

Comrade U Da-kun in his article ("Sintsian-she" No. 8, 1957) unmasked this "theory" and underlined that its meaning is to give the bourgeoisie a theoretical weapon for resisting socialist reforms. The Party, he said, believes that the dual character of the national bourgeoisie still remains at this stage of socialist revolution, because "to admit that the bourgeoisie already has no dual character, means that the task of reeducating it falls away"; that is exactly what the rightists want, disseminating their "Marxist theory" of "red bourgeoisie." The dual character of the bourgeoisie in China is confirmed by the struggle against the "five evils," in the process of which the Party and the people were forced to overcome the resistance of capitalist elements; the "hard" interest is also proof of it, because as long as capitalists receive it, the roots of exploitation will continue to exist.

Such is the point of view of the Communist Party of China and it is embodied in the policy and measures taken by the state for the reorganization of the capitalist economy. These policies and measures received the approval of the entire nation including the majority of the bourgeoisie, which is the best proof of the correctness of the Party line.

The "theoreticians" of the rightists are active also in other branches of political economy. They stubbornly attack the Marxist theory of population. In this struggle their principal weapons are the neo-Malthusian theories of the leading "specialists" in this field of rightists — Fei Siao-tun, U Tsin-chao, Chan Da, Li Tsin-han.

In his articles "A Few Words on Sociology" (13) and "What Does Sociology Give ?" Fei Siao-tun tries to "prove" the impossibility of building socialism in China because of the "vast overpopulation" of the country. He asserts that the population of China is too numerous and the accumulations for industry too small, the surplus product supposedly is completely used for individual consumption. Therefore "to build socialism in China is to build a palace on sand."

Another "theoretician" of the right-wingers, U Tsin-chao in his article "A New Theory On the Problem of Population of China" (14) tries to give the same conclusion a somewhat more scientific form, supplying citations from Marxist-Leninist classics. U Tsin-chao discusses this problem in connection with the productivity of labor, as the most important factor for the growth of socialist production; in accordance with the demand of the basic economic law of socialism socialist industry must be supplied with the most advanced techniques. He draws the following conclusion: the renovation of socialist production in China with the newest techniques inevitably requires accumulation, but without new techniques the growth of labor productivity is impossible. Thus, according to his assertion, there is a vicious circle with no way out.

More than that: following his logic U Tsin-chao concludes that permanent unemployment is unavoidable in China. But, if new techniques are introduced, he continues to reason, this will cause increases in labor productivity and, consequently, constantly increasing unemployment. The outlook for China is very black, declared this right-wing "theoretician," and it is all because of enormous population.

In order to make their reasoning more convincing the right-wing bourgeois elements operate with such notions as perfect technique, automation, mechanization, and electrification. They discuss the most rational and effective economic methods of labor, emphasizing that all these progressive factors are unattainable for China. This demagogic trick they use to disorient the toiling people, to demobilize them, and to undermine their faith in socialism.

The Chinese scholars of Marxism severely criticized this neo-Malthusian nonsense of the right-wingers. The article of Comrade Li Pu in "Jenmin Jipao" (October 14, 1957) was devoted to unmasking anti-Marxist theories on population. The author points out that the rightists over-emphasize the problem of population. "They want to show that the problem of population is currently the principal contradiction, and if it will not be solved the building of socialism in China will be a waste of energy, a Utopian dream."

How does the Communist Party resolve this problem? "In our country we have plenty of people. That is good" — said Comrade Mao Tse-Tung — "but, naturally, this is connected with difficulties." (15)

Thus, the problem of population has two aspects. Considering this, the Communist Party of China is utilizing the rich resources of manpower in socialist construction which demands a constant increase of "hands" and at the same time it is taking measures to regulate the size of population, taking into account economic conditions in the country and striving to improve by all means the living conditions of the people.

In their attempts to prove the impossibility of industrialization and the building of socialism in China, the rightists refer to the lack of accumulation. This argument is refuted by the experience of building socialism. For the First Five Year Plan alone 27 billion yuan were invested for the development of industry, which is 2.7 times more than all the capital invested for the development of industry in the preceding 100 years. (16) This fact alone testifies to the enormous internal resources enabling accumulation; it could be obtained only under socialism.

During the First Five Year Plan, wrote Comrade Li in the article quoted above, China laid the initial foundation for industrialization, built hundreds of first-rate industrial enterprises, and equipped them with the most advanced techniques. In the future there will be even more such enterprises and they will serve as the skeleton of the industrial reconstruction of socialist China. All this completely refutes the demagogic "theories" of the rightists about the unavailability of the newest techniques for China.

At the same time, said the author of that article, the Communist Party, evaluating realistically the economic conditions of the country, and considering the material and human resources, utilizes in every possible way the simplest techniques and manual labor. The basic economic law of socialism does not demand (as the rightists assert) that every workingman should at once start using the newest techniques. Why, for instance, should textile enterprises turn immediately to automatic lathes? Between automation and the simplest techniques are intermediate stages — partial automation, etc. The policy of the Party is: on the one hand, to build large enterprises equipped with the newest techniques, which are the foundation of industrialization, and on the other hand, to utilize middle-size and small enterprises with the simplest techniques and manual labor. Such a policy facilitates capital construction, promotes economy of resources, to a great extent solves the problem of utilization of the very rich resources of labor power, and does not contradict the basic economic law of socialism.

The purpose of the rightists, writes Comrade Li Pu, is to discredit the policy of the Party, by using the population problem, to provoke a conflict between the Party and the people and thus frustrate the building of socialism.

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The methods of collecting and studying the facts, and methods of social investigation applied by Marxists, the rightists declare to be subjectivist and anti-scientific. But "objectivism" reflects the interests of the bourgeoisie whom the rightists represent. This is seen in the studies carried out by the outstanding "theoreticians" of the right-wing, Fei Siao-tun and Li Tsin-han.

Fei Siao-tun wrote the book "The Life of the Peasants of China," published abroad twenty years ago. Hiding behind the mask of an objective investigator, the author propagandized the harmony of interests of the exploiters and the exploited, and class peace in the old semi-feudal China. The object of the book of Fei Siao-tun was to study agrarian relations in Tsiansu province in the thirties. Relying on his "objective" method, Fei Siao-tun wrote: "It is wrong to consider the landowner and the usurer as extortioners. In the absence of a satisfactory system of credits for the peasantry...the landowner and the usurer are quite a normal product... Without them the situation would be even more terrible." (17) He considers also that the radical solution of the agrarian problem in China lies not in abolition of feudal ownership, but in revival of the "traditional home industry." This could result in an increase in peasant income, growth of production in the country and could lead to the industrialization of China in the future."

The continuation and development of these ideas appeared in an article by the same author "Second Visit to the Villages of Tsian-si," (18) published in June 1957. On his visit to the same places 20 years later, i.e. after the victory of the people's revolution, the agrarian reforms, and the establishment in the villages of a new cooperative system, Fei Siao-tun did not see anything new, or anything positive. His sympathies remained with the exploiters. Comparing the present economic situation of the landowners and "kulaks" with what it was 20 years ago, he drew the conclusion that living standards in the village had declined and that agricultural production had decreased.

The slanderous character of the conclusions drawn by Fei Siao-tun is revealed by the facts.

Comrade Chou En-lai in his report on the work of the government at the 4th session of the All-China Assembly of People's Representatives cited data characterizing steady growth in the material well-being of the Chinese peasantry after the liberation of the country. In 1950 the purchasing power of the peasantry was 8.1 billion yuan; in 1956 it was 19.1 billion, i.e. it increased 2.36 times.(19)

There was not and could not be such an improvement in the peasants' standard of living in old China. In the prewar year 1936, the income of peasants was at its highest level for Kuomintang China, and amounted to 61.2 yuan; in 1956 it was 84.2 yuan (in comparable prices) i.e. it increased more than a third. (20)

Fei Siao-tun deliberately did not note the enormous material and social improvements in the Chinese village, and tried to prove that the cooperative system has no advantages, and that the policy of the Party in the village is wrong.

The same aim is pursued by another "specialist" in the field of social investigation, Li Tsin-han. In his article "The Past and Present Life of Peasant Families in the Suburban Regions of Peking" he openly slanders the cooperatives.

The malicious attacks of Fei Siao-tun and Li Tsin-han, as well as their anti-scientific investigations in the field of social relations in the Chinese village, were unanimously rebuked in numerous discussions and in the press of China.

"Any social investigation," said Comrade Chen Tsin-ju in one of the discussions, "always has a class character...So-called objectivism, void of any theory, conceals the position of serving the bourgeoisie." (21) Under the mask of objectivism, said Chen Tsin-ju, the rightists were fishing for, fabricating and exaggerating the contradictions between the nation and the Party; they utilized social investigation for distorting facts and exaggerating defects, in order to defame the policy of the Party in the villages, to blacken the cooperative system and undermine the faith of the peasants in the advantages of cooperatives.

In his speech on "The Problem of the Proper Solution of Contradictions Among the People," Mao Tse-tung said: "While condemning dogmatism, we must at the same time pay attention to the condemnation of revisionism...After the victory of the socialist revolution in our country, there remained in society some people who entertain vain dreams about restoring capitalism; they struggle against the working class in all fields, including the field of ideology. In this struggle the revisionists are their best helpers." (22)

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The offensive of the rightists on the economic front has as one of its main purposes the struggle against the Communist Party and its leading role in the country, and against its directing role in socialist construction and the development of science.

In his "Observations" Chen Jen-han and his supporters accuse the Party of inability to manage the economics of the country, of bureaucratism, of attempts to erect a wall between the Party and non-Party scientists, of intolerance toward the bourgeois scientists who have a Marxist-Leninist position. Such a policy of the Party, they say, has a pernicious effect on economic construction, closing all roads to creative development of the sciences, and creates an intolerable condition of sectarianism in the sciences. (23)

Unmasking these malignant attacks of the right-wingers, Comrades Sue Mu-tsiao, Tsen Lin, Yan Pei-sin, Lo Gen-mo, Chan Yu-jen and others, who appeared at the discussions and in the press, showed the real nature of the accusations advanced by the rightists. "The furious attacks on our economic policy," said Comrade Chan Yu-jen, "mean that the rightists in essence want to define the economic policy of the Party and the state." (24)

Recommending the teachings and methods of Keynes, as a theoretical base for the economic development of the country, the rightists are suggesting at the same time that leadership in the national economy pass to their advisers. These advisers have to "control the measures taken by the government for economic construction and make their own proposals." In order to allow the participation of "bourgeois specialists" in the management of the economic life of the country the rightists suggested creation of a special organ such as the English "King's Council"; this so-called "Committee on Financial and Economic Policy" was to get complete economic power in the country and to replace the management of the Party in the national economy.

The right-wingers counted on a complete replacement of Party leadership in science by the self-government of bourgeois professors based on "proper reorganization" of economics. As a beginning, the liquidation of Party committees in the institutions of higher learning was suggested. Thus, the rightists wanted to farm out the training of scientific cadres to the bourgeois professors. Then the whole system of schooling was to be "reorganized." They advocated ending training of specialists in general political economy and the history of economic thought and suggested instead introducing courses in bourgeois political economy. The rightist planned to start the "reorganization" of economic training in the department of economics of Peking University, proposing to organize it on the model of American colleges.

The "modest" slogan of the rightists "to give a place to bourgeois political economy" thus, means an attempt to liquidate the study of Marxist-Leninist political economy.

Further, the rightists did not like the political tenor of the scientific theoretical economic organ "Tsintsi-yantsu." They insisted on a change in its "one-sidedness" and demanded to make it a "Journal for All," which actually meant — to make it a mouthpiece of the rightists bourgeois scientists.

The Chinese Marxist scientists unanimously rebuffed the rightist bourgeois elements — the menials of the reactionary bourgeoisie and the enemies of socialism and the Communist Party.

Comrade Chou En-lai said: "To such people the planned socialist economy is not very much to their liking; they would prefer to have capitalism. But their trouble is that the broad masses of the people all over the country are not on the side of capitalism; very definitely they are on the side of socialism."

In spite of all the attempts of the rightist bourgeois elements to discredit Marxist-Leninist theory and the successes of socialist construction, the 600 million-strong Chinese people is unified as never before, and rallies even more around its Communist Party which is leading it to new victories.

FOOTNOTES

(1) "Tsintsi-yantsu" No. 4, 1957, p. 3.
(2) Sintsian-she No. 11, 1957, p. 30.
(3) Mao Tse-tung, "The Problem of a Correct Solution of Contradictions Among the People. "Pravda" Publishers, 1957, p. 34.
(4) "Tsintsi-yantsu" No. 5, 1957, p. 26. The authors of this document are: Chen Jen-han, Sui Yui-nan, Lo Ji-ju (Peking University), U Bao-san (The Institute of Economics, CPR Academy of Sciences) and also Nin Si-fan and Gu Chun-fan.
(5) "Sintsian-she" No. 9, 1957, p. 23.
(6) "Tsintsi-yantsu" No. 5, 1957, pp. 92 and 123.
(7) "Tsintsi-yantsu" No. 5, 1957, p. 33.
(8) Sintsian-she No. 9, 1957, p. 15.
(9)
(10) "Tsintsi-yantsu" No. 5, 1957, p. 107.
(11) "Sintsian-she" No. 8, 1957, p. 29.
(12) "Tsintsi-yantsu" No. 9, 1957, p. 2.
(13) "Wenhueibao" February 20, 1957.
(14) Sintsian-she No. 3, 1957.
(15) Mao Tse-tung, "The Problem of a Correct Solution of Contradictions Among the People," p. 32.
(16) "Shishishowtse," December, 1957.
(17) Cited from the "Tsiani Yantsu" No. 5, 1957, p. 117.
(18) "Singuancha" No. 15, 1957.
(19) See "People's China" No. 14, 1957. Appendix, p. 19.
(20) "Drujba" No. 3, 1957.
(21) "Tsintsi-yantsu" No. 5, 1957, p. 117.
(22) Mao Tse-tung, "The Problem of a Correct Solution of Contradictions Among the People," p. 37.
(23) "Tsintsi-yantsu" No. 5, 1957, pp. 129-130.
(24) "Tsintsi-yantsu" No. 5, 1957, pp. 124 and 129.

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The Law of Value and the Problem of Price Formation in the USSR

(Review of Some Articles and Letters Received by the Editors)

During the past year many articles and two reviews were printed in "Problems of Economics" devoted to the operation and utilization of the law of value under socialism, particularly in connection with price formation in the USSR.

The discussion on this question which developed on the pages of this journal called forth a wide response among Soviet economists. The editors received some tens of articles, notes and letters devoted to the problem of utilizing value levers in the planned leadership of the socialist economy as well as questions of the necessity for and the nature of commodity production under socialism. In one review it is impossible to express the points of view of the authors on all of these questions.

In this review the editors confine themselves to an examination of some of the materials received only insofar as they touch on problems of price formation, leaving for the future a clarification of the position of authors of articles on questions of the causes, character and peculiarities of commodity production under socialism. In preparing the review the editors have attempted to acquaint readers of the journal primarily with the essence of those positions which have not been elucidated in published articles. Here only a brief evaluation is given of the various points of view. In one of the forthcoming numbers of the journal the editors intend to publish an article which will sum up some results of the discussion taking place on questions of the operation of the law of value and price formation in the USSR.

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Characterization of the price system that has developed in the USSR and determination of the path of its further improvement depend to a considerable degree on the treatment of the question of the peculiarities of the operation of the law of value under socialism. In the articles and letters received by the editors differing points of view are expressed on this question. Some authors feel that the cause of existing deficiencies in price formation is an artificial and unnecessary restriction on the operation of the law of value. In their opinion to solve all problems of perfecting economic accounting, improving the price system, etc., only one thing is necessary — to give "large" or even "full scope" to the operation of the law of value.

Those who are close to the view that the law of value as an objective economic law must not be restricted are N. Akmanov (Ufa), N. Poleshchuk (Lvov), N. Shcherbakov, V. Krivtsov, N. Bunis (Leningrad) and D. Stadukhin (Sverdlovsk).

In speaking of the necessity "to give large scope" to the operation of the law of value these comrades interpret extremely carelessly the concrete significance of this position. Thus, while Comrades Akmanov and Poleshchuk, starting from this abstract formulation, consider any deviation of prices from value unnecessary under socialism, Comrade Stadukhin on the other hand presumes that such deviations "are necessary means for the rational utilization of the law of equivalent values," and Comrades Shcherbakov, Krivtsov and Bunis in their article devoted to the deficiencies of price formation in hydroelectric machine building and the construction industry arrive at the following conclusions which are also extremely general and have not been given a theoretical foundation: to construct prices according to the formula of prices of production (prime cost + certain rate of profit calculated in proportion to the value of fixed and circulating funds of the enterprise), "to replace the turnover tax by a tax on advanced (capital) value." In arguing for granting the law of value "full scope," for transforming it into a "regulator of socialist production," N. Shcherbakov, V. Krivtsov and N. Bunis feel that we ought to "first determine sales prices and then work out methods of production" and so on. However, "transformation" of the law of value into a regulator of socialist production and refusal to restrict its operation are incompatible with a socialist planned system of economy.

N. Poleshchuk, noting that the deviation of prive from value in simple commodity production and from price of production in a capitalist economy are caused by the influence of supply and demand relations, holds that constant equality between supply and demand for all commodities is a regularity of the socialist economy. "The divergence of supply and demand is not a specific peculiarity of socialism and therefore it cannot affect pricing practice," he writes. Consequently, continues N. Poleshchuk, "consciously setting prices above or below values has nothing positive to offer and contradicts the socialist essence of our system of national economy."

The position of N. Poleshchuk hardly requires detailed criticism.

Let us assume that at a given time "absolute equilibrium" is achieved, expressed in N. Poleshchuk's formula: all commodities are sold at their values under conditions of equality of demand and supply. Maintenance of such a position for a lengthy period would be possible only if society's requirements remained unchanged and the structure of production fixed. This, however, does not occur in reality. Both the structure of production and consumer demand change extremely rapidly. In many cases the socialist state has the task of stimulating the consumption of certain commodities and curtailing that of others. The means of influencing demand in such a manner under conditions of commodity production and circulation is the divergence of prices from values.

The inadequacy of N. Poleshchuk's conception is determined not only by his mistaken point of departure but by the uselessness of the conclusions he has formulated for solving the practical tasks of price fixing. The basic conclusion of the article is this: "It makes sense to absorb into the budget only those resources which are required for the unproductive sector, defense and those branches which are only beginning to develop and be created. All other accumulations must remain with the branches in which they are created and will be utilized." It is not difficult to see that in such a posing of the question the law of value is transformed into the regulator of socialist production, unrestrictedly directing the proportions of its development, while the law of planned, proportional development and the superiority of the socialist method of production stemming from it are completely ignored.

All of these propositions on the need to give "full scope" to the law of value fundamentally conflict with our reality, and do not meet the requirements of improving the utilization of value categories in directing the national economy. It is not surprising that these views are not held by the majority of participants in the discussion. All authors (except those cited above) concerned with the question of the nature of operation of the law of value under socialism emphasize the interconnection of this law with all economic laws of socialism, the limitation on the operation of the law of value imposed by the whole system of economic laws of socialism which determine the special nature of its manifestation in a socialist economy. "In price formation under socialism," writes D. Kazakevich (Tomsk), for example, "the law of value is interrelated with other economic laws in determining the role of the basic economic law."

Many authors emphasize that price in a socialist economy serves as a tool for distributing and redistributing national income, stimulating or, on the other hand, restricting the production and consumption of this or that commodity. Thus, it cannot passively follow the movement of value: price reflects the influence of all economic laws of socialism. To prove the correctness of this thesis many authors cite the practice of price formation in the USSR. "Price under socialism, fulfilling the function of distributing the national income, is subordinate to the operation of economic laws of socialism; this finds its expression both in the character and in the form of movement of price," writes G. Anisimov (Moscow).

In the article of D. Trifonov (Leningrad) it is noted that "the divergence of price from value is the only possible form of realizing the law of value." This characteristic feature of the mechanism of the operation of the law of value, continues the author, is also maintained under socialism. However, in contrast to simple commodity and capitalist production, the divergence of price from value under socialism is realized not through the free play of market prices but in a planned way through the establishment of uniform state prices. The task of utilizing the law of value in price formation under socialism, emphasizes D. Trifonov, consists in "establishing such prices, the level of which, expressing the magnitude of value, would stimulate the development of this or that branch of social production in accord with the requirements of the national economy dictated by the basic economic law of socialism and the law of planned, proportional development."

The impossibility of constructing prices in exact correspondence with values is also argued by some authors on the ground of the unreality of attempts to discover, calculate or plan the very magnitude of value, since, as D. Stadukhin writes, "the latter is determined not by the state but by objective conditions of production and distribution of the aggregate product of society." Many authors subject to sharp criticism the position of A. Livshits (see "Problems of Economics" No. 10 for 1956) on the possibility of planning the magnitude of value. In their opinion the state can effect the rate of decline in the cost of production in this or that branch through a certain policy of capital investment, the setting of norms for labor, expenditure of raw materials, other materials, fuel, etc., but direct planning of value is impossible. D. Kazakevich considers that the assertion of the possibility of planning the magnitude of value represents a subjective treatment of the categories of socially necessary labor time and value. "Adjusting individual labor expenditures of separate enterprises to the socially necessary is an objectively unfolding process of commodity production. The state in a planned way exercises an influence on lowering the value of the commodity but it is not in a position to predetermine the final results of this process."

Thus, the majority of participants in the discussion take the position that the variety of functions of price in a socialist society determine the need for its divergence from value. As far as concrete principles of price formation and criteria of the reasonable magnitude and direction of divergence of price from value in different branches and departments of social production are concerned, the materials examined represent a variegated picture of the most diverse, occasionally mutually exclusive points of view. All of these authors are in agreement on only one point: prices must not diverge below values beyond a limit insuring the recovery of production expenses of the enterprise. "As soon as these divergences begin to affect not only net income but other parts of the value of the product," writes D. Stadukhin, for example, "they are transformed into a crude violation of the law of equivalent exchange and have an extremely negative effect on the economic development primarily of that branch the prices of whose products are considerably below the social value of commodities."

Considerable interest is attached to the question of the causes leading to the formation of different levels of prices for means of production and articles of consumption and the economic nature of this phenomenon. This question found expression in articles sent in. M. Adonts (Erevan) writes that the difference between the level of prices for means of production and articles of consumption was established originally for the purpose of increasing the fund of socialist accumulation. The position that the divergence of prices of means of production below their values can lead to a real increase in accumulation is disputed, however, by some authors. Thus, in the opinion of I. Brover (Alma-Ata), "reducing prices on means of production below values in general cannot provide any gain for the socialist state."

S. Oganesian (Erevan) characterizes somewhat differently the processes leading to the formation of two levels of prices In the reconstruction period, he writes, sharp changes in the structure of industrial production led to a scarcity of commodities of mass consumption which called forth an increase in the prices of these commodities. The rate of growth of the wage bill was, in his opinion, greater than the rate of expansion in the production of articles of consumption and, consequently, the rise in nominal wages sharply exceeded the increase in the value of production of department II. The increase in prices of articles of consumption and the divergence of prices of means of production below their values caused by it was not the source but the result of high rates of accumulation. Thus, the formation of two levels of prices, emphasizes S. Oganesian, expresses the profound social-economic processes of the period of construction and consolidation of the socialist mode of production connected with basic changes in the structure of social production and distribution of the national income.

Some authors consider that the positive role of the two levels of prices has now been exhausted. The need for bringing prices of the means of production to the level of prices of articles of consumption these authors justify primarily by considerations of strengthening self-support in branches of heavy industry. "As long as prices of means of production are built on the principle of prime cost," writes D. Kazakevich, for example, "the presence of a large number of unprofitable enterprises is unavoidable. Only if prices are fixed at the level of social value will all or almost all enterprises of these branches become profitable, although the rate of profitability will fluctuate depending on qualitative indicators of the work of separate enterprises." Because of differences in the level of profitability, economic self-support stimuli for improving the quality of work of the enterprise will be fully retained but all defects connected with budget subsidies for lagging and, as a result of current price fixing practice, unprofitable enterprises, will disappear.

M. Adonts and other authors emphasize also that low prices of means of production not only do not stimulate the growth and application of new technique, but even hinder it, since they keep amortization deductions low, minimize the importance of the economies of means of production as a source of reducing prime costs and thus weaken the stimuli for struggling for their rational utilization.

The proposal of Y. Kronrod on the necessity of establishing a uniform level of prices in both departments of social production is supported by several other authors. However on the question of the path of transition to this uniform level only M. Adonts is more or less close to the position of Y. Kronrod. In his opinion the transition to a uniform level of prices should take place through increasing the prices of means of production, in the first place on those types which are presently unprofitable. Other authors evaluate the proposal for a general and considerable increase in prices of means of production as unacceptable.

Thus, S. Oganesian considers as incorrect the concept of the mobile scale of prices lying at the basis of Y. Kronrod's proposal on the reform of wholesale prices, and points out that the problem of bringing together the level of prices of means of production and articles of consumption cannot be solved with the help of purely formal methods. A general increase in prices of means of production, he writes, cannot but exercise an influence on the level of prime costs (and thus on prices) in the light and food industries, and consequently such a reform is by no means a purely technical operation as it is presented by Comrade Y. A. Kronrod. An increase in prices of the production of department I, in the opinion of S. Oganesian, must be accompanied by a decline in the prices of consumer goods, and as a whole the task of bringing prices into accord with values cannot be solved by a reform in one fell swoop.

E. Berkovits (village of Pevek, Chukotka), noting that the system of prices that has evolved fulfills important functions of redistribution of incomes and accumulation, is also doubtful of the suitability of Y. Kronrod's proposal. It is true that, in contrast to S. Oganesian, he considers that a change in the scale of prices in department I will not affect the real processes of redistribution of the national income and from this point of view the price reform would bear a technical character only. However, such a reform, in his opinion, would create some complications: it would produce an artificial inflation of the nominal value of the budget, would complicate the work of financial organs in connection with the expansion of operations for collecting the turnover tax, etc. For these reasons, writes E. Berkovits, "to bring the prices of production of both departments into accord with values can and must be done, but not through hasty reforms."

A unique position on the question of realizing the turnover tax in the prices of production of department I is occupied by K. Ionete (Roumanian People's Republic). In principle he considers as preconceived and inadequately theoretically grounded the thesis of the necessity for realizing almost all of the turnover tax in prices of the production of department II. However, K. Ionete takes into account that an equal distribution of the turnover tax over all types of production of the national economy without exception would complicate the activity of the financial organs. His proposal comes to the following: "Instead of establishing the turnover tax for every enterprise of department I it can be established only on the means of production that are transferred from department I to II, from which it is obvious that it must include the labor expended for society in all enterprises of department I. Enterprises of department II, directly producing articles of consumption, must receive the means of production at their full values, that is, including the turnover tax."

It remains unclear, however, what such a reform would yield. It is evident that such a measure cannot result in a uniform level of prices, that is, to the expression in prices of value proportions.

In materials received by the editors the question of what must lie at the basis of prices in a socialist economy is widely discussed. Thus M. Ratner (Moscow) for example, proposes to establish prices on all types of production according to the scheme of "prices of production." Departures from this scheme are possible only for scarce items of national consumption. This, in the opinion of M. Ratner, will insure the correspondence of price formation "to the nature of the socialist mode of production and the character of economic processes of expanded reproduction," will make it possible to compare and evaluate correctly different variants of capital construction, technological processes, application of new technique, etc. In addition, as M. Ratner notes, profitability, calculated as the relationship of money accumulation to all production funds, "will appear as an objective indicator of the technical and organizational rationality of conducting the economy, of the degree of utilization of these funds." Such an opinion is also held by I. Minaev (Moscow). In his article he writes that "the current method of calculating profitability does not stimulate economically effective utilization of fixed and circulating funds."

It is necessary to note that the thesis put forward by Comrades Ratner and Minaev on the advantages of building a system of price formation on the basis of "prices of production" did not receive much of an adequate foundation in their articles. In particular, it remains completely unclear why an average level of profit, as M. Ratner writes, corresponds "to the nature of socialist production," while equal rates of accumulation in relation to the magnitude of fixed and circulating funds — "to the character of the economic processes of expanded reproduction." Supporters of establishing prices on the basis of "prices of production" overlook that the mechanism of average profits is not characteristic of socialism, that the automatic distribution of accumulation between enterprises and branches in proportion to the volume of their own production funds contradicts the requirements of the law of planned, proportional development which assumes the need for a planned redistribution of accumulation in accord with the concrete tasks of developing the socialist economy at this or that stage. It is not accidental, therefore, that the editors received many articles with criticism of the proposition that the basis of price formation in the USSR constitutes "price of production."

Thus, for example, V. Rydnik (Kharkov) considers as unacceptable price formation according to the scheme: prime costs + average rate of profitability or prime costs + average rate of profit calculated in relation to funds utilized in production. The authors of such proposals, in his opinion, clearly exaggerate the importance and possibility of covering each branch's capital investment requirements out of its own accumulation. Comrade Rydnik believes that out of their own accumulation it is expedient for enterprises to cover not more than 1/5 - 1/4 of allocations for capital construction (expenditures for expansion and reconstruction of existing enterprises); resources for construction of new enterprises must be formed through planned utilization of the accumulation of enterprises in different branches of industry under the control of a given economic council as well as through concentrating a considerable part of accumulation in the republic and Union budgets. An important defect of price formation according to the principle of prime costs + average profit or the scheme of "prices of production" is also, notes V. Rydnik, an increase in prices of the production of capital absorbing branches and the resulting considerable decline in the effectiveness of new technique. V. Rydnik considers that establishing prices on the basis of costs of production makes possible the most exact and well-grounded complex evaluation of the effectiveness of production.

Somewhat unique is the position of S. Oganesian in the discussion of the basis of price formation. In his opinion although the relationship $\frac{s}{c + v}$ currently varies markedly in different branches (and this must find expression in price formation), in the future, to the extent that technique develops in all branches, "exchange according to real value" will be possible.

This attempt to reconcile two basic conceptions of price formation can hardly be recognized as successful. Even if we assume, together with S. Oganesian, that technical progress with time will lead to an identical technical equipping of labor in all branches (in the article this assumption is not supported by anything), then even in this case a difference between value and price of production would be retained because in different branches, representing successive links in the chain of reproduction, the mass of value of processed raw material per unit of value of fixed funds cannot be identical. With identical technical equipping of labor the relationship $\frac{v}{c}$, and consequently $\frac{s}{c + v}$, will be higher in extractive branches, where the value of raw materials is not large, and lower in branches of manufacturing industry.

Along with the conceptions of price formation already presented (on the basis of value and the scheme of "prices of production") in the articles received a different point of view was also expressed. Thus, P. Mstislavskii (Moscow) considers that in branches producing means of production prices must be built on the principle of prime costs + minimum profit, since "under socialism minimum profit and not average and not high profit has the most stimulating and disciplinary force. The current practice of the socialist economy is based on the collective of the enterprise being directly interested not in profit but in above-plan profit." From this arises the "first peculiarity of the Soviet system of prices," which consists of the fact that wholesale prices of enterprises of state heavy industry fluctuate around prime costs. Another peculiarity of the Soviet system of prices, in the opinion of P. Mstislavskii, "consists of the fact that retail prices on articles of consumption are considerably higher than their prime costs. In the circulation of articles of consumption there exists a scale of prices which on the average is about 2/3 higher than the scale of prices in the circulation of means of production."

N. Veduta (Minsk), F. Diderikhs (Leningrad) and several other authors propose constructing prices of means of production at the level of branch-average prime costs without including in the price any elements of net income. They justify this mainly on considerations of improving the accounting of labor costs in the national economy. Thus, N. Veduta writes, that "with price formation based on costs the possibility of a correct orientation not only when new technique is introduced, but also in determining rational inter-plant connections is excluded, since not expenditures for machinery but also expenditures for all purchased materials, raw materials, semi-fabricated goods, etc. appear higher for the enterprise than expenditures for the payment of labor. Under these conditions it is more advantageous for an enterprise to produce semi-fabricated goods itself than to receive them from outside." The unavoidable unprofitability of many enterprises under such conditions of price formation is not, in the opinion of N. Veduta, a defect. He considers that economic self-support stimuli operate in completely the same manner under conditions of profitability as well as under conditions of unprofitable production. Such positions ignore the significance of economic self-support and profitability in the socialist economy.

Many authors, without taking an absolute position on any one of the schemes, consider that questions of the direction and magnitude of the divergence of prices from values must be solved concretely for every commodity group in particular, and by taking into account the price relationships that have been formed. Such a position is held, for example, by V. Rydnik and D. Kazakevich. "Price," writes V. Rydnik, "serves, on the one hand, as an important instrument for the planned redistribution of national income between sectors of the socialist national economy, between spheres of consumption and accumulation, between branches of industry, etc., and on the other hand, the level of prices also exercises a vital influence on the conditions of realization of production and the magnitude of demand for separate commodities. The latter refers basically to articles of consumption, but to a certain extent also to means of production." These functions of price make it an important tool of economic policy. Therefore, attempts at a mechanical approach to the determination of prices, constructing them according to some kind of formula, ignoring the concrete conditions of distribution and circulations of the social product are mistaken. It is extremely important to take account of these circumstances in solving the tasks of further improving price formation.

Analogous considerations are expressed by D. Kazakevich. Taking account of the requirement of the law of value in price formation, in his opinion, consists of the necessity of establishing a uniform price on identical types of production, reimbursing the enterprise in the price of its production not for individual but for socially necessary expenditures, expressing in prices the interrelationship of sociall necessary expenditures on the production of different commodities, lowering prices on the basis of and to the extent of declines in the social costs of production. Comrade Kazakevich emphasizes that in establishing prices on new types of means of production it is necessary to begin from the existing system of prices, and not from some kind of a priori principles. Of greatest importance in this are the following questions: (1) will the established price stimulate a rational utilization of the material resources of the nationa economy; (2) will it stimulate technical progress — a rational replacement of obsolescent machines by new ones, a transition to new, more economical or high quality materials, etc; (3) will the new price be an economic stimulant for the development of production for branches that are suppliers of new products, will it ensure a growth or at least a stable level of profitability as compared to prices of current production.

Such are the basic positions of authors of unpublished articles and letters on questions of the character and functions of prices in socialist society and the laws of price formation. Most authors of the examined articles are in agreement in that all of them consider the law of value as an objective economic law of socialism, and price as a manifestation of this objective law, expressing real relations and conditions of commodity production and circulation. Along with this point of view, in some of the articles received by the editor, there is expressed the position that the only function of price under socialism is the exact reflection of expenditures of social labor on the production of goods. This conception, finding, in particular, expression in the articles of N. Veduta and I. Brover, in essence denies the objective character of price as an economic category under socialism. In actuality, in order to express with the greatest possible exactness the expenditure of social labor on the production of the given commodity, it is not at all necessary to express these expenditures in price, in some kind of commodity-equivalent quantity. Moreover, the price form is not the best form of an adequate expression of expenditures of social labor since it includes within itself the possibility of a quantitative lack of convergence with the magnitude of these expenditures, with the magnitude of value. As K. Mai (GDR) writes in his article, calculating the expenditure of socially necessary labor does not at all assume as a necessary condition the existence of commodity production and the law of value. On the contrary, value forms only complicate the direct calculation of the social expenditure of labor. On this subject N. Akmanov writes: "An indicator of the exchange relationship of the products of labor to money is not an absolute and exact indicator of the quantity of social labor expended on the production of goods." It is not surprising therefore, that economists, viewing as the sole function of prices under socialism an exact reflection of expenditures of social labor, either openly take the position of the noncommodity character of socialist production, or, recognizing in words the existence of commodity production and the law of value under socialism, actually deprive value forms of objective economic content, equating them only with forms of calculation.

Such an approach to the category of price under socialism obviously cannot lead to a correct solution of the problem of improving the system of real commodity prices. Fully ignoring the various economic functions of prices, the representatives of the "accounting" conception are not in a position to provide any satisfactory characterization of the existing system of prices and the whole practical experience of price formation in the USSR and to project future paths of improving price formation.

Thus, if all types of "accounting" conceptions of prices are of little use for the solutions of real problems of price formation, the question raised in some articles on working out methods of calculating expenditures of social labor on the production of various goods deserves careful examination. Insofar as prices of commodities, as many of the participants in the discussion write, must reflect the conditions of distribution and circulation of the social product, they cannot (with rare exceptions) coincide with values. Consequently, value relationships cannot help but distort the actual relationships in the expenditure of social labor on the production of various products. Nevertheless, for the purpose of a scientific analysis and solution of many tasks of planning, for selection of the most effective variant of capital investment and other analagous economic calculations the most exact indicators of the expenditure of social labor on the production of this or that product are needed. For this reason some authors consider that the working out of a method of calculating the expenditure of labor is an independent problem. Thus, V. Rydnik, U. Tolypin, N. Akmanov and F. Diderikhs believe that, along with prices regulating the relations of commodity exchange, socialist society must have available data on the actual expenditures of labor in order to utilize these in economic accounts.

The basic tendencies in working out methods of calculating indicators of expenditure of social labor presented in the unpublished material are the following: 1) organization of accounting of labor expenditure or the labor absorption of production directly in working hours; 2) utilization of current value indicators for the purpose of calculating "value" on their basis; 3) a combined method, the essence of which consists of taking data on labor expenditures in hours as the basis, but for reducing labor time in different branches to a common denominator, data on the magnitude of average wages are utilized with the latter being viewed as an indicator of the skill of labor in the corresponding branches.

As is known, calculation of the labor absorption of production within the limits of a separate enterprise is a task that has already been solved. Some authors, V. Rydnik for example, consider that there is a possibility of a gradual development to a calculation of the quantity of labor embodied in materials, fuel, etc., consumed at this or that enterprise. A gradual improvement in the accounting of such complex inter-branch labor absorption will permit, in the opinion of V. Rydnik, "a considerably fuller and more convincing evaluation of the real costs of production of the most important types of products than may be done with the aid of purely value indicators." Analogous views are also expressed by some other authors; however their proposals are too general and do not contain concrete recommendations on the organization of such accounting.

Some authors are working out different variants for the accounting of "value," starting from existing price indicators. To their number belongs, for example, V. Novikov (Kiev). The "formula for the accounting of value" proposed by him is the following:

$w = vs + v + vz$, where $x = c/v$ and $z = s/v$

These coefficients (x and z), he writes, are determined through an analysis of the structure of the total social product. If they are known, then knowing the magnitude of wages paid out in different branches will make it simple to find the value of the corresponding products. In this, however, it remains unclear how an analysis of the price structure of the social product will result in finding these coefficients in value terms and why the relationship $\frac{c}{v}$ must be the same for all products.

Of great interest is the attempt of V. Rydnik to develop S. Strumilin's formula for the calculation of the individual value of production at separate enterprises. The calculation of individual value and control over plan fulfillment with this indicator could play, in the opinion of V. Rydnik, in economic practice a role comparable to that which control of prime costs of production now plays, but because of fundamental advantages inherent in the indicator of individual value, this task would be fulfilled considerably better. Noting that utilization of the average coefficient $\frac{s}{v}$, taken as identical for all enterprises, is unacceptable for calculating individual value of production since in this case differences in the level of labor productivity at different enterprises are not expressed, V. Rydnik proposes in calculating the individual value of production to begin not from the wage fund (the fund of personal consumption of the workers), but from its magnitude corrected for the level of productivity of labor at the given enterprise. The higher the productivity of labor the less the individual working time spent for covering the fund of consumption and vice versa. Therefore, continues V. Rydnik, the magnitude of the individual value of production can be derived only if the value of the surplus product calculated from the norm $\frac{s}{v}$ is multiplied by the value of the fund of individual consumption corrected in accord with the individual level of productivity of labor.

Taking into account the corrections proposed by V. Rydnik, the formula of Academician S. Strumilin takes on the following form:

$$\text{w ind.} = c + \frac{v + v\frac{S}{V}}{z}$$

where z is the indicator of the relationship between the level of wages at the given enterprise and its average for the whole industry.

The essence of the correction indtroduced by V. Rydnik into the method of calculating the value of production proposed by Academician S. Strumilin consists, therefore, in calculating the share of each enterprise in the creation of the net product of the given branch not in proportion to the wage fund but in proportion to the number of production workers considered jointly with the productivity of their labor. This idea, undoubtedly, deserves attention if we consider that the magnitude of average wages at separate enterprises may depend on circumstances unrelated to the creation of value (regional differences in wages and so on). V. Rydnik considers that the significance of the indicator of individual value as a generalized qualitative indicator of the work of an enterprise will grow particularly in those cases where prices will approach values. Inadequate consideration of the economies of living labor in the prime cost indicator is now compensated for to a certain extent by the relative cheapness of the means of production. With the approximation of prices of the latter to their values this inadequate consideration will lead to growing distortions of the magnitude of expenditures of social labor and replacement of prime cost indicators by value indicators will become necessary.

It must be noted, however, that the practical application of the formula of V. Rydnik as well as the formula of S. G. Strumilin is complicated by the fact that these formulae assume a prior calculation of the relationship s/v for the national economy as a whole. To find this relationship in value terms by utilizing data on the price structure of social production is an extremely complicated task. Moreover, without its solution "the calculation of value" of production is impossible. The situation is still more complicated by the fact that the magnitude of this relationship (s/v) does not remain unchanged and must be computed anew each time for each year or even for each quarter, etc.

In the opinion of F. Diderikhs these complications are overcome if it is recalled that working time under the conditions of socialism reflects all expenditures of living labor (v + s) and at the same time is a criterion of the individual consumption of workers in production (v). From this it follows that a monetary evaluation of labor expenditures in the form of wages can serve as a criterion for calculating all of newly created value. Therefore, for calculating the value of production as well there is no need to compute the magnitude v/s which is subject to constant changes, but it is sufficient to calculate value based on a proper accounting of the costs of v. Since the costs of v are proportional to newly created value v + s, in order to compare the value relationships of different products it is sufficient to compare expenditures by the formula c + v. As a result of this calculation, in the opinion of F. Diderikhs, it is possible to obtain an indicator characterizing the expenditure of labor on the production of this or that commodity. This type of indicator F. Diderikhs calls the "accounting form of value" (in contrast to the exchange form-price). Its necessity he justifies in the following manner: "Not having an accounting of the value of production it is impossible for the purpose of lowering it to project with sufficient exactness the most suitable path of developing production and to control the success of measures applied in this direction."

Essentially the same method is proposed by N. Veduta. "Comparing the different wages of different workers we can always say with certainty that the number of times by which one worker's expenditure of energy in the process of labor was greater than another's was the number of times by which his wages were higher, under the conditions, of course, that the principle of payment according to work is not violated. Average (social, branch, factory, etc.) payment for an hour of labor time is a magnitude that is fully known and determinate. By comparing the individual wages of the worker with the average payment for an hour of labor time any individual labor can be expressed in hours of social labor time." Since "wages are not only a measure of the labor of the worker, but also one of the items in the calculation of prime costs," existing accounting records make it possible to conduct an accounting of labor expenditures directly in hours of labor time: "If the wages included in the prime costs of production are divided into average hourly wages, then we obtain... the number of hours of labor time expended on the production of goods by those workers whose wages are included in prime costs." However, calculation of labor under the existing practice of price formation is possible only within the limits of the given enterprise. The inclusion in wholesale price of profits and other parts of the value of the product for society make it impossible for the enterprise-consumer to calculate material expenditures in hours of labor time. In connection with this, Comrade Veduta proposes "to exclude from the price all forms of product for society." Then at any stage of production "price will represent the sum of wages expended by society in connection with the production of goods and will simultaneously appear as the monetary expression of the quantity of labor embodied in production. Such a price, established according to the average social prime costs of production, divided by the average payment for an hour of labor time will express in hours the socially necessary labor time."

It is obvious that this kind of "price" has no connection with the value of products and, strictly speaking, is not a price. First of all there arises the question: in what way under the "price system" proposed by N. Veduta will expanded reproduction and the maintenance of the unproductive sector be realized. If all prices are equal to prime costs, then the total price of final products of consumption would be equal (less deductions for material costs of production required for renewing production on the previous scale) to the sum of wages paid out in the productive sector. In other words, this system of prices can exist only under conditions of simple reproduction and then only in a society whose activity is limited exclusively to the sector of material production, that is, consequently, in completely unreal circumstances.

In contrast to N. Veduta, F. Diderikhs understands that prices built on the basis of "accounting values" will be unable to ensure the realization of accumulation in the national economy. To eliminate this defect he proposes to establish retail prices on articles of consumption at a level exceeding their "accounting value" by the number of times that the whole wage fund for the national economy exceeds the "accounting value" of the mass of articles of personal consumption, that is, to concentrate 100% of monetary accumulation in the form of the turnover tax on products of department II.

Leaving aside for the time being the question of the usefulness of this conception for solving practical problems of price formation, we note that the "accounting value" of Diderikhs and Veduta cannot serve as an instrument of technical economic calculations since in their models the authors completely ignore the circumstance that the relationship between transferred and newly produced value differs markedly in different branches and in the production of different goods. Even if it is true that the relationship s/v at each given moment is a constant magnitude for the whole national economy and that, therefore, wages (v) can serve as a measure of the whole newly created value (v + s), from this it does not yet follow that the relationship (v + s)/c is also constant. On the contrary, the magnitude of this last relationship, being closely connected with the technical and technological peculiarities of different types of production, varies within very wide limits. Therefore the "accounting value" of F. Diderikhs can seriously distort the actual relationships in the expenditure of social labor in the production of different goods. Let us suppose, for example, that the structure of expenditures on the production of two interchangeable products is characterized by the following figures:

	c	v	s (s= 0.75v)	accounting value	real expend. of social labor
product A	400	100	75	500	575
product B	200	300	225	500	725

As can be seen from this example, the method of calculating "accounting value" proposed by F. Diderikhs, purporting to give an exact expression of the value relationships of different products, leads to results which distort the actual relationships in the expenditure of social labor. At the basis of these methods (of Diderikhs and Veduta) of calculating the expenditure of social labor rests the assumption that the costs of production (c + v) of different products are proportional to their full values (c + v + s). It is not difficult to see that this assumption can be true only under the condition that the relationship v/c is a constant magnitude for all branches and products. Insofar as this last condition does not exist in real life, the examined methods of calculating value cannot find practical application.

A more "improved" system of calculating the expenditure of labor on the basis of indicators of prime costs of production is proposed by P. Grudinskii (Moscow), P. Mstislavskii and S. Gyshchin (Bondar, Tambov oblast). These authors reason in the following manner: If all of the net income for society was to be realized in prices of articles of consumption, then prices on means of production would be established at the level of their prime costs, and prices on articles of consumption would exceed their prime costs by the whole magnitude of the net income created by society. The magnitude of money wages would be determined in this case by the actual prices of articles of consumption, the sum of which expresses not only their values but a certain excess above their total value equal to the surplus product created in department I, while money would function at two different levels: first it would serve as personal-money turnover (purchases by the population of commodities of mass consumption), second — for the circulation of commodities between state enterprises. This differing function of prices, in the opinion of P. Mstislavskii, represents an objective peculiarity of the operation of the law of value under socialism. Money wages paid out in the productive sector under these conditions play a dual role: available money, functioning at the level of prices in personal-money turnover, serves the process of distribution of articles of consumption between workers of material production. But the same money sums, paid out in different branches of industry and included in prime costs of the corresponding items, are included in calculations at the level of prices of non-personal turnover and in this, so to speak, calculating quality represent not v but the magnitude of the whole newly created value (v + s). In other words this conception holds that workers in the productive sector nominally receive, in the form of money wages, the equivalent of all of the new value they create (v + s) and therefore the wages included in the prime costs of production reflect all expenditures of living labor; the break-down of this newly created value into v and s takes place in the process of the distribution of articles of consumption, the level of whose prices exceeds their values by a magnitude required for accumulation and maintenance of the unproductive sector. Thus, v + s, expressed at the level of prices of non-personal turnover, nominally appears equal to v at the level of prices of personal-money turnover. All of s is realized as an addition to the value of articles of consumption in the form of the turnover tax.

It is not difficult to notice that the scheme presented here is not tied up with the actual state of affairs in the sphere of price formation. As a matter of fact, wages, expressed at the level of prices of department I, could serve as a measure of all expenditures of labor and all newly created value only under the condition, as the authors themselves note, that the whole surplus product be concentrated in the prices of commodities of department II. This, in its turn, assumes that prices of means of production do not include anything above prime costs.

But realization of the means of production at prime costs and absorption of 100% of money accumulations in the form of the turnover tax in prices of commodities of mass consumption would signify a complete departure from utilization of price as an important economic lever for developing production, would undermine self-support in heavy industry, would require an increase in prices of articles of consumption. Therefore, neither the conception of F. Diderikhs, nor its improved version by P. Mstislavskii and N. Grudinskii are useful, obviously, as practical recommendations for the improvement of the existing system of prices. Moreover, the divergence of these schemes from the prevailing price system excludes the possibility of utilizing them for "the accounting of value."

Problems of Cost of Agricultural Products

(A Review of Articles Submitted to the Editors)*

A sharp increase in the productivity of labor in kolkhozs, sovkhozs, and MTS is a decisive condition for a quick improvement of agriculture. A decrease in the amount of labor necessary per unit of production determines a decline in its cost as well: consequently, it permits the lowering of prices on foodstuffs and products of extensive consumption in the production of which agricultural raw materials are used. The work of kolkhozs, sovkhozs, and MTS must not only be judged by the quantity of output, but also by its cost.

The proper calculation of cost is exceedingly important for the strengthening of self-support in kolkhozs and MTS, for economically founded distribution of agricultural production and specialization of kolkhozs, and also for the most expedient determination of the prices of agricultural products. This is why so much attention in recent years has been devoted in economic research to the calculation of the cost of agricultural production. A considerable number of authors have taken part in the discussion of this problem in the pages of the journal "Problems of Economics." Since it is impossible to publish all the articles submitted, the editorial staff feels it is necessary to acquaint its readers with the principal ideas and proposals which are found in these articles.

The majority of materials received by the editorial staff is devoted to methods of calculating cost in kolkhozs. Moreover, there are among these articles some which examine this particular problem in a wider theoretical perspective. For instance, a large part of a work by V. N. Dolzhnikh (city of Kuibyshev), on the subject of "The Cost of Agricultural Products — The Most Important Index of Kolkhoz Activity," is devoted to the theoretical generalization of the concept of cost. The author stresses that an evaluation of the economic effectiveness of the productive activity of an economy as a whole, and of each of its branches individually, is impossible without an account of expenses; these must be compared with the final results of the economy's activity. Such an evaluation is also impossible if reserves discovered on the basis of calculating cost are not utilized.

Moving on to the practical problems of calculating cost of agricultural production, Comrade Dolzhnikh mentions some difficulties which arise in evaluating in money payment in kind made by kolkhozs and MTS — i.e., products given out per workday units and payment in kind for the work of MTS. The author proposes to evaluate the payments in kind granted per workday units to the workers of kolkhozs and MTS on the basis of government purchasing prices. In the case of payments in kind for the work of MTS, all the labor of MTS workers for agricultural production must be remunerated with an equivalent amount of work by the collective farmer. The work of the latter is embodied in kind and money payments in return for MTS work. The author feels that this part of kolkhoz production does not have to be accounted for when calculating cost, whereas it is not included in the expenses of a kolkhoz for agricultural production.

F. S. Semenov (Kazan) also writes about the necessity of excluding payments in kind for the work of MTS from consideration in the computation of the cost of kolkhoz production. MTS and kolkhozs, he stresses, are two independent systems which are bound by agreement. The MTS receives as payment in kind from the kolkhoz that share of the product which represents the newly performed work of MTS members, as well as the past labor of workers which is comprised in the means of production of the MTS. As it is well known, strict rates of payment in kind are established. They are founded on an account of the full payment of work performed by the MTS according to its cost with consideration being given to the equivalent part of differential rents. The desirability of excluding payment in kind from the computation of the cost of kolkhoz production is supported by the fact that the MTS is also a self-supporting enterprise which calculates the cost of its own production — i.e., of payment in kind, as well.

The author feels that errors in computing expenses for seed are tolerated in accounting for production cost. Usually the number of workday units needed for the utilization of the past year's seed is calculated first; only then are the expenses calculated for the seed of the following year. In the author's opinion, there is, in this case, one single amount which appears first in the debit and then in the credit section so that the seed fund for grain crops is, in fact, nonexistent. The seed for grain crops, therefore, must be excluded from the accounts.

B. Z. Sinzinis and V. P. Rozhin (Moscow) note the principal defects in the existing method of calculating the cost of payment in kind for the work of MTS. In the first place, expenses for especially difficult tasks which have a high cost are not directly related to the crop with the cultivation of which they are connected; rather, they are distributed in proportion to the scope of soft tillage. In the second place, the cost of amortization of the principal means of the MTS is not accounted for in the cost of soft tillage, nor, consequently, in that of payment in kind.

The authors recommend their own system of calculating the cost of payment in kind in return for work performed by MTS. They believe that it is essential, firstly, to establish the scope of each type of work in terms of physical and arbitrary hectares; amount of fuel and lubricants; number of workday units performed by the tractor drivers, mechanics, and other personnel working for the crop of the next, as well as of the current year. Secondly, the authors believe it is essential to estimate the fuel and lubricants used on the basis of separate tasks. Thirdly, they believe that it is necessary to establish, on the same separate basis, the expenses for the payment of wages to the workers of tractor brigades, combine operators, and their assistants, weighers and mechanics. Then it is necessary to determine the indirect expenses (administrative expenses, wages of the administrative personnel, amortization payments, expenses for maintenance and repair) and to distribute them in proportion to the scope of tractor tasks performed on separate crops. The sum of all these expenses (with the exception of fines for waste of fuel) will give the sum of the expenses of the MTS over separate agricultural crops. In order to calculate the cost of payments in kind (determined and granted), the authors recommend that the cash payments of the kolkhoz for the work of the MTS in corresponding crops be subtracte from the sum arrived at, and the difference divided by the payment in kind, as it is determined or already granted.

The authors document their article by mentioning the experiment in calculating the cost of payment in kind for the work of MTS, according to the method they propose, in two kolkhozs in the zone of activity of the Ramen MTS. They feel that the fact that MTS have been made self-supporting calls for a change in the system of accounting in the MTS. The budget principle which is at the foundation of the present system of accounting must be replaced, in their opinion, by a production principle which will create all the necessary conditions for the determination of the cost of payment in kind and for the control over the fulfillment of the principles of self-support.

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* In one of the forthcoming numbers of this journal an editorial will be published which will offer certain answers to the discussion of this particular question.

A. M. Malishev (Penza) offers his experience with calculating cost of production in the kolkhozs of the Penza region. He feels that the labor of collective farmers is best evaluated when the cost of production in kolkhozs is computed, on the basis of the average socially necessary level of its payment, and on the actual payment of the workaday unit — in money and kind — according to its cost in the given kolkhoz. The expenses of MTS in the cost of kolkhoz production should be computed, the author recommends, on the basis of the real cost of payment in kind, i.e., on the basis of the cost of tractor tasks.

I. M. Ribalchenko (Svoboda, Kursk region) gives an account of the experiment of computing cost of agricultural production in the Gorki and Mirovoi Oktiabr Kolkhozs of the Kursk region in 1956. On the basis of the analysis of data, the author comes to the conclusion that an evaluation in money of the workday unit must be used when calculating the cost of production in kolkhozs, whereas the grants in kind must be evaluated according to retail prices; the payment in cash for work performed by MTS must be evaluated on the basis of the cost of the latter; seed and fodder — on the basis of distribution prices; surrendered and sold production — on the basis of the money actually realized; mineral fertilizer — on the basis of acquisition prices; local fertilizers — on the basis of the cost of straw and hay, while amortization is to be evaluated on the basis of sovkhoz norms.

A. Nesterenko describes the experiment with calculation of cost in the Lenin Kolkhoz of the Chkalov district and Put k Kommunizmu Kolkhoz of the Shipov district (Primorsk region) which was conducted by scientists of the Far Eastern branch of the Academy of Sciences of the USSR in cooperation with agricultural specialists. The author convincingly shows the importance of the analysis of data pertaining to the cost of kolkhoz production which brought about the discovery of reserves for the lowering of all types of expenses in several kolkhoz and MTS of the Primorsk region.

M. Chernovetsky (Vilnius) examines in his article the principal suggestions on the controversial question of calculating the cost of kolkhoz production. He also analyzes several theories, the aim of which is to solve this problem. In particular, he is concerned with the question of whether the assumption of the greater growth of the productivity of labor in comparison with the increase in wages holds true under conditions of kolkhoz production and distribution as they exist today. As it is known, the kolkhoz realizes part of the production put out through various channels and at different prices (contracted, government purchasing, and prices which form on the kolkhoz market). Therefore, the returns received by way of these channels are also different.

The author stresses that the profitableness of the kolkhoz depends (unlike a government industrial enterprise) not only on the level of the productivity of labor and on the degree of reduction of the cost of production, but also on the specific gravity of the production of goods as well as upon the prices at which it is realized. When the specific gravity of the production of goods rises and is realized at prices which exceed those of procurement, the gross profit of the kolkhoz also increases. That part of it which is distributed per workday units after deductions are made surpasses the growth of production and the growth of the productivity of labor. This, in turn, leads to an increase in the payment of labor and, consequently, to an increase in cost.

In connection with this, the author proposes that in cases when part of the undistributed income is to be used for supplementary distribution on the basis of workday units, on the basis of a common decision, it is not to be included in the cost of production. If after the necessary deductions from the sum of gross income are made, it is apparent that the remaining part is smaller than the sum destined for the payment of the collective farmers' work and is calculated according to the planned and actual grants per workday units, then this deficit must be covered at the expense of an insurance fund. In case the latter is non-existent or insufficient, the difference between the planned and actual distribution per workday units included in the cost of production must be accounted for in production expenses and in reckonings with members of the artel. In the future, it must be liquidated as an expense not covered by the income of the current year.

This article also examines the question of evaluating products consumed in kind within the economy. The author feels it is proper to evaluate products given out to the members of kolkhozs for their workday units in various economic districts individually, according to local conditions. In districts that have a high level of productivity of agricultural labor, where government retail prices are above the prices of kolkhoz trade, products must be evaluated according to the prices of the kolkhoz market. In those places where these prices tend to be alike, they should be evaluated on the basis of government retail prices. In districts where the level of productivity of agriculture is comparatively low and where the prices of kolkhoz trade are higher than government retail prices, it is expedient to evaluate on the basis of the former, if these are stable. If they are unstable, the payments in kind per workday units must be evaluated on the basis of government retail prices. Fodder produced within the economy, Comrade Chernovetsky feels, must be evaluated according to government purchase prices at which such items may be sold at any time.

V. I. Pugachev (town of Bokhan, Irkutsk region) criticizes the method of calculating the cost of kolkhoz production proposed by the All-Union Scientific Research Institute of Agricultural Economics. This method is founded upon the arbitrary evaluation of the workday unit on the basis of the rate of the average wages of a sovkhoz worker. The author documents his views with the result of the analysis of data concerning a group of kolkhozs of the Irkutsk region. In these kolkhozs, the computation of production cost was conducted according to the system proposed by the Niesk Institute. Comrade Pugachev comes to the conclusion that this method does not result in a true picture of the economic reality of either one, or of a group of kolkhozs. An arbitrary evaluation of the cost in money of a workday unit gives results that are arbitrary as well. Such evaluation makes for an artificially overstated cost of kolkhoz production. Moreover, the collective farmers are not given an opportunity to draw conclusions as to what measures are necessary for the lowering of cost.

The author of the article proposes to include in the cost of kolkhoz production, when it is compiled, not only the entire sum of expenses for the past cycle of production, but also those expenses without which the output of this or that product in the kolkhoz would be impossible. For this reason, he proposes his system of classifying monetary-material expenses; the same method is to apply to all aspects of kolkhoz production.

A. D. Kozlov (Moscow) criticizes the methods of calculating cost that have been formulated by the economic planning administration of the Ministry of Agriculture of the USSR and the Institute of Agricultural Economics. These two methods, the author writes, are quite fully set forth in the supplement to the annual report on kolkhozs — in the section dealing with workday units and with monetary-material means for production. It is no accident that some economists — members of the staff of the Ministry of Agriculture of the USSR — feel that the data concerning expenses for kolkhoz production contained in these yearly reports are the point of departure for planning its cost.

Nevertheless, on the basis of the analysis of a large quantity of data concerning expenses for production in the kolkhozs of the Sosnovski district in the Tambov region, Comrade Kozlov, as well as Comrade Pugachev, comes to the conclusion that there is a contradiction between the actual situation and the results of computations made according to these methods. When using these systems, one must operate not with real expenses but with arbitrary quantities, which result in an arbitrary and not in an actual cost. The author notes that the problem of calculating the cost of kolkhoz production cannot be solved with arbitrary estimates of the cost of the workday unit and of material expenses; furthermore, a solution is impossible if seed is excluded from gross production and payment in kind. In one instance the result will be an obviously overstated cost which will falsely reflect the reality of kolkhoz production; in the other, there will be a definitely "cut down" cost.

At the same time, Comrade Kozlov stresses that the yearly reports on kolkhozs, in spite of inaccuracies in the section dealing with expenses, do give the economist very valuable data which may be used after some corrections for the calculation of cost as well as for theoretical studies.

K. I. Stepanov (Suvorov Kolkhoz, Kirsanov district, Latvian SSR) proposes to compute expenses in labor and means, and, consequently, cost, on the basis of one hectare in husbandry and of one head of cattle in livestock breeding. After the completion of work on fields and the end of the agricultural year, expenses, calculated on the basis of one hectare, are related to the production yielded by this area, and the expenses for one head of cattle, to the production received per given unit. In Comrade Stepanov's opinion, the method he proposes will permit the solution of several important questions, including questions of national utilization of the labor force and of means of production.

P. A. Krasiukov (Voronezh) writes that the cost of the production is one of the principal economic indexes for the organization of self-supporting field-tractor or complex-tractor brigades. It must include such expenses which depend on those engaged in production and which can be accounted. In order to calculate the planned cost per unit of production of plant growing in a complex tractor brigade, the author proposes that the expenses of MTS for fuel, repair of machinery and wages of workers be taken into consideration, as well as the expenses of the kolkhoz in connection with this brigade (workday units and monetary-material means). Collective farmers' workday units expressed in money are to be evaluated according to the average wages of sovkhoz workers (nine rubles per workday unit). Materials produced and used within the economy are included in the account on the basis of their cost in a given kolkhoz. The cost of livestock raising production is calculated in the same way as the production of crops. Finally, fodder produced for the economy itself is included in the expenses on the basis of its cost.

The author proposes this method as an improvement over the one applied by staff members of the branch of the Institute of Agricultural Economics in the brigades of the K. Marx Kolkhoz of the Bobrov district, Voronezh region. According to this method the expenses of MTS are included in the cost of kolkhoz production in the form of payment in kind evaluated at purchasing prices, while seed of kolkhoz production is evaluated at cost. The author feels that payment in kind, at whatever prices it may be determined, does not reflect the true expenses of MTS for agricultural production in the kolkhozs it services. Since payment in kind is not part of the kolkhoz's expenses for growing a crop it will be exaggerated in regions with favorable conditions for grain cultivation, if cost is calculated according to the second method; in northern and far-away regions it would be diminished. Comrade Krasiukov asserts that such a method of determining the cost of kolkhoz production excludes the possibility of increasing the material interestedness of MTS workers, while it also stands in the way of the introduction of self-support in MTS and kolkhozs.

P. N. Makarov (city of Kuibyshev) recommends new ways of accounting workday units and man days. He proposes to do this on the basis of types of production in brigades and dairy farms which have been made self-supporting. The author writes that if the productivity of labor is considered on the basis of gross production per workday, the kolkhozs will be able to determine with greater accuracy the paths and reserves for the growth of the productivity of labor. Comrade Makarov tells of the experiment of making self-supporting the brigades and livestock raising farms of the kolkhozs The 19th Party Congress of the Shigonov district and Put Lenina of the Stavropol district in the Kuibyshev region. He proposes that the planning, accounting and analysis of the activity of MTS tractor brigades working in kolkhozs should be also completely subordinated to the demands of a self-supporting economy in the kolkhoz.

The author presents documentation which allows, in his opinion, the planning, accounting, and analysis (on the basis of type of production) of the productivity of labor and of the cost and profitableness of production either yearly or every month. He also submits data on the analysis of the cost and profitableness of grain production in an advanced and in a retarded kolkhoz of the Kuibyshev region. Comrade Makarov contends that the index of production cost cannot be used alone in determining the success of a kolkhoz's work. The level of profitableness of a kolkhoz must be judged in terms of the scope of production yielded by 100 hectares of land; it must also be judged on the size of net income and accumulations, on the percentage of profitableness of the production in different types of the same, and on the basis of the kolkhoz as a whole and of its branches. It is expedient when compiling cost to evaluate payments made in kind per workday unit on the basis of government purchasing prices.

The author of the article recommends that the average pay for socially necessary labor be determined in the future by way of statistical examination of data concerning the actual cost of production of both kolkhozs and sovkhozs of each economic zone of the country. This payment must be determined as the average actual payment of labor in kolkhozs, sovkhozs, and MTS; the payment of the labor of all members of kolkhozs, sovkhozs, and MTS, including administrative and other personnel, must be taken into consideration. The author feels that the establishment of a single system of evaluating the workday unit for all the kolkhozs of a district is not correct.

Touching upon the question of the evaluation of payment in kind for the tasks of MTS in the cost of kolkhoz production, Comrade Makarov writes that both the MTS and the kolkhozs participate in the creation of products. The expenses of MTS for kolkhoz production must be related proportionally to the number of hectares of soft tillage.

G. F. Dudnikov (Krasnodar) stresses the necessity of basing the change to self-support of brigades, farms, and enterprises upon productional assignments with indication of the terms of scope and quality for the fulfillment of each task. The conjunction of the interests of government, kolkhoz, and collective farmers will determine these assignments. In order to accomplish this, it is necessary to reform the payment of the collective farmers' labor as well as that of the tractor brigades; the foundation for this must be the output of the gross production of husbandry and livestock breeding, the increase of the number of heads of cattle and of the production of subsidiary establishments, etc. Definite qualitative indexes for the work of collective farmers and specialists must determine the establishment of additional payment of labor. Money and in-kind payments granted in advance to collective farmers and tractor brigade workers must also depend upon the fulfillment of production assignments and the budget estimate according to all indexes.

The author writes that cost is primarily the monetary expression of all the expenses for the production of some definite product in a definite economy. It is absolutely necessary that the cost of kolkhoz production be computed on the basis of a single monetary gauge. Cost must be the general index of the activity of a kolkhoz and must include all principal, overhead, and direct and indirect expenses of living and past labor spent by the kolkhoz for the production of some product. The calculation of cost is related to the aim of a systematic and profund scientific study and documentation of the distribution and introduction into kolkhozs and economic districts of corresponding branches of agriculture; it also agrees with the aim of studying the formation of prices in each type of production.

Comrade Dudnikov submits a sample scheme of the principal elements of cost expenses. He feels that cost must be calculated not only at the year's end, but, also, every month; planning calculation is also indispensable.

The author does not agree with the recommendation of the Ministry of Agriculture of the USSR that amortization payments which exist in the accounts of each kolkhoz be included in the cost of kolkhoz production. In his opinion, the calculation of the amortization of the principal means in kolkhozs must be accomplished in a systematic way according to standardized norms and the method of accounting developed by the Ministry of Agriculture.

The author comes to the conclusion that the price of registering the entire kolkhoz production must be at the basis of the determination of actual and planned cost, of profitableness, and of price foundation before real cost can be arrived at in the kolkhoz. He proposes to reform the existing system of accounting in kolkhozs so that it may coincide with the indexes of the planned calculation of cost. The author recommends that a similar system be used in all branches.

U. V. Abramov (Rostov-on-Don) presents his own method of determining planned cost in the kolkhoz. It consists of accounting for the following elements of expenses (as planned): Workday units, products locally produced and consumed (seed and fodder), grants in money and kind for the remuneration of MTS labor, monetary expenses for production needs, amortization payments on the balance of the cost of means of production.

After the formation of the plan of production and of the budget estimate of the kolkhoz or of a single production-financial plan, and after the yearly production assignments to brigades and farms have been made, the caluculation and evaluation of workday units takes place. Products granted on the basis of workday units are evaluated at government purchasing prices. Planned or actual payment in money is added to the sum of this evaluation. After this, the expenses for products needed for internal production (seed and fodder) are determined. When calculating the remuneration of MTS expenses, the expenses of both kolkhozs and machine-tractor stations are taken into consideration. Administrative and other general expenses of the economy are included in the sum of expenses in money for production needs. The amortization payments on the balance cost of the means of production will be determined by means of accounting, on the basis of their state at the beginning of a planned year or at the end of an accounting year. Then, cost per horse-day and kilometer-ton is determined, and this, in essence, corresponds to the calculation of expenses for the payment of labor; finally, the expenses in money for production needs and amortization payments on the cost of machines, automobiles, construction, inventory, etc., are compiled; this amounts to the calculation of the same elements of expenses as when planning the cost of production.

The author considers such a method to be valid for the determination of both the planned and real cost. It has been put into practice by members of the staff of the Northern-Caucasian branch of the All-Union Scientific Research Institute of Agricultural Economics in the Lenin Kolkhoz.

Many of the articles submitted are dedicated to the question of evaluating the workday unit. For instance, V. I. Morozov (Ilovaiskoe Station, Stalin region) writes that it is absolutely necessary to draw conclusions from real kolkhoz production facts and to rely upon actual data of kolkhoz accounting, rather than to apply arbitrary indexes. The workday unit must be examined not as an arbitrary unit, but as an economic category which characterizes the cost of production of the kolkhoz as well as material expenses. However, the final distribution of money and products does not express the production expenses of a kolkhoz, but rather the distribution of income which often includes a part of the net income and of differential rents. Therefore, in this case, too, a distorted image of the cost of kolkhoz production may result. For this reason, the author proposes to include in cost only that part of a workday unit's payment which represents the cost of socially necessary work.

In the author's opinion, the solution to the problem of calculating the cost of kolkhoz production in monetary expression will be possible only when a firm and guaranteed payment per workday unit is introduced. In kolkhozs where such payment is not introduced, it is expedient to measure the share of live labor directly in workday units.

Comrade Morozov feels that an evaluation of the labor of collective farmers according to the average grant per workday unit in a district or a group of districts, which levels the influence of differential rents upon the size of payment per workday unit, corresponds more fully to the real conditions of production. This will cause the cost of production in economically strong kolkhozs to be no higher than in economically weak kolkhozs.

M. F. Yaniushkin and A. L. Yanushkevich (Kherson) communicate that many kolkhozs of the Kherson region calculate all labor and means expenses per unit of production and express them in terms of workday units. According to this method, kolkhoz expenses for production are calculated on the basis of labor expenses (expressed in workday units), of material expenses (seed, fodder, payment in kind for MTS work, etc.), and of money expenses (disbursements for fertilizer, fuel, et al.). Each of these elements is subdivided into direct, overhead, and indirect expenses. The structure and technique of accounting and relating direct and overhead expenses in one or another branch of production are the same as they are in sovkhozs. All production outlay is then brought down to one index — the workday unit — according to the following formula: $E = L/G$, where E represents the expenses of production in workday units per unit of production; L, the amount of labor in workday units; and G, the gross production — expenses in money and kind.

Yet, production expenses, similar to the cost per unit of production, do not give a complete image of the income of separate branches or crops. The account of expenses, however, allows the kolkhozs to determine the economic effectiveness of individual crops or branches of production. For the determination of economic effectiveness, the authors recommend the following formula: $E = (M + X + K)/Y$, where E is the economic effectiveness (of the crop or of the branch) in rubles; M, money income from realization; X, expenses in kind in rubles; K, grants in kind per workday units in rubles; and Y, all the expenses of production in workday units. The income in money from realization is taken as it actually is; expenses in kind for needs of production (including, also, payments in kind to MTS) are calculated at government procurement prices, while products given out in kind per workday units are evaluated in terms of government purchasing.

The index of the economic effectiveness of expenses per workday unit in branches and crops is not absolute. The kolkhozs complete it with the index of the economic effect which results from one hectare of sowing of the given crop. In the authors' opinion, the method used by the kolkhozs of the Kherson region is not perfected, but, since it reflects reality, it allows an adequately complete and deep analysis of economics. This method helps to discover ways of increasing the output of production per area unit while simultaneously lowering expenses of labor and means.

S. I. Azev (Saratov) also dedicates his article to the method of evaluating kolkhoz production and the cost of the workday unit. He makes several recommendations; in particular, he proposes to evaluate at procurement prices only that part of agricultural production which the kolkhoz does to fulfill required assignments. All other production, including that part of it which remains in the kolkhozs, he proposes to evaluate at purchasing prices or at average prices (according to each group of products).

The author proposes to evaluate all production in prices when planning the cost of workday units, after subtracting from it that part of it which is in merchandise, fodder, and seed (expressed in terms of money as well). The difference will represent those expenses of production which entirely concern the workday unit. All expenses in money for the needs of production are added to them.

V. N. Maksheyev (Magnitostroy Kolkhoz, Vasiugan district, Tomsk region) reacts against the recommendation to determine expenses per unit of agricultural production in kolkhozs at the end of the year solely on the basis of the number of workday units and means and expenses needed for its production — evaluated at procurement price. An index of cost so derived cannot be used for the comparison of the results of the work of separate kolkhozs and for the determination of the results of competition in this realm.

The author feels that a single factor of measurement is needed in order to determine the actual cost of producing a unit of production in the kolkhoz and in order to be able to compare the result of work among different kolkhozs. There are two such factors in the existing system of kolkhoz accounting: rubles and workday units. Comrade Maksheyev considers that it is proper to determine the amount of labor per unit of agricultural production in terms of workday units. Money which came into the kolkhoz from the realization of production, from outside wages or in the form of other income, and which was spent for the production of any type of agricultural production may be converted into workday units at the rate of the actual payment for this labor (taking into consideration products for distribution, given out in kind at retail prices). All expenditures of mone must be included in the expenses for production except the sum distributed on the basis of workday units and means subtracted from income but remaining at the kolkhoz's disposal (sums destined for the paying off of investments, for current production expenses which are forthcoming at the beginning of the new economic year, etc.).

Workday units used up for construction, important repairs etc. should not be included in the number of workday units involved in production, because the former are spread over several years. Capital expenses must be accounted separately in the form of yearly amortization payments in rubles

In the author's opinion the final figure of expenses per unit of production in kolkhoz agriculture must be shown in workday units. The sum of amortization payments for this unit must be calculated separately in rubles. The cost of a unit of kolkhoz production, expressed in workday units, will be lower in the leading kolkhozs with a high rate of labor payment and higher in those kolkhozs where this pay is low.

Comrade Maksheyev also feels that it is expedient not to express the expense in kind of one's economy separately in terms of procurement rate, because such an index cannot be used as a criterion of expenses by the kolkhoz. As to expenses made in kind, such as fodder for cattle, for example, they must be included in the amount of labor on the basis of the actual number of workday units involved in their production.

P. M. Boldirov (Nizh-Lomov, Penza region) thinks that it is necessary first to calculate the percent of wages in relation to the entire sum of expenses for production in neighboring sovkhozs in order to arrive at an evaluation of the workday unit in money, and then to take this percent as the basis for the determination of the monetary evaluation of the workday uni

Since in the practice of kolkhoz production, the accounting of expenses for the determination of the cost of agricultural production is not carried out, it is, therefore, necessary to calculate the total sum of production expenses from the entire gross total of all types of production: these must be evaluated on the basis of government prices. In this manner, the author thinks, it is possible to obtain the evaluation in money of workday units, reduced to qualitatively similar labor, without including the tariff rate.

Z. N. Vintaykin (Moscow) examines in his article the different methods of lowering the cost of agricultural production in suburban kolkhozs. The author of the article closely relates this question to the problem of finding the most expedient method of calculating the cost of this production.

He feels that the evaluation of labor in kolkhozs according to the actual payment per workday unit will lead to a situation wherein in each agricultural artel there will be individual evaluations, which will vary from year to year. It is Comrade Vintaykin's opinion, therefore, that expenses for the payment of labor should be evaluated according to the rates in force at sovkhozs. For practical purposes, he proposes to have, in addition to the full cost, two other indexes — the amount of labor in workday units, and material and money expenses expressed in rubles per one centner of production. The author also considers it right to evaluate payment in kind on the basis of purchasing or even of retail prices (depending on which of these is closer to cost).

Using the example of several kolkhozs of the Moscow region, Comrade Vintaykin analyses the structure of the cost of principal production. He notes, as several other authors do, that there are great possibilities for lowering the cost of production. He stresses that the struggle for lowering cost must be carried out in all parts of kolkhoz production, founded on the principle of self-support.

The evaluation of the labor used in production must be made, F. A. Boiko (Ryazan) recommends, not only in terms of workday units, but also in monetary terms. In his opinion, workday units must be evaluated when converted into monetary value according to the objective government evaluation of agricultural labor, i.e., according to the rates in force in sovkhoz production (9-12 rubles per workday unit, depending upon the zone), and not according to the actual grants per workday unit in a given kolkhoz. Payment in kind for MTS tasks must not be subtracted from the gross total of the kolkhoz's production; rather, it should be considered as part of the cost of production and evaluated on the basis of government purchasing prices. Amortization, seed and fodder produced by the economy itself, etc. should be calculated according to the sovkhoz method.

Comrade Boiko writes that calculating production cost will give the kolkhoz the ability to relate organically its yearly production plan with the budget estimate and to change to a single production-financial plan which will become the foundation for the implantation of true self-support in kolkhoz production. In conclusion, the author proposes that the question of kolkhoz accounting be re-examined.

S. Buliakov (Moscow) stresses the indispensability of giving kolkhozs a method of accounting for the compiling of production cost which is accurate, simple and within the reach of kolkhoz bookkeepers. This method must not be based on the data of the yearly kolkhoz report, but rather upon data of the current bookkeeping accounts. Comrade Buliakov proposes to revise the present system of bookkeeping in kolkhozs in order to achieve a more correct calculation of the cost of production in kolkhozs.

On the subject of the evaluation of the workday unit, the author writes that at the present time, kolkhoz production approaches sovkhoz production in terms of its development and of the productivity of labor. Therefore, kolkhoz labor should not be evaluated on the basis of the average sovkhoz wages, but on the basis of rates of wages for types of labor similar in both. In other words, work performed in the kolkhoz must be evaluated according to rates for piecework or time established for each type of work in sovkhozs that have similar natural conditions.

Payment in kind, in Comrade Buliakov's opinion, must be evaluated and included in the cost of kolkhoz production according to the planned cost of tractor tasks, reduced to one hectare of soft tillage as they are established by the government for different MTS zones.

The author feels it is improper to evaluate workday units according to the average sovkhoz wages as the All-Union Scientific Research Institute of Agricultural Economics suggests, because cost calculated according to this method will not afford comparison on a social basis.

When evaluating kolkhoz work on the basis of sovkhoz rates, the calculation of planned cost will also be made possible. This will be most important, for the comparison of planned cost with actual cost will help in the discovery of ways to lower the actual cost and make it more similar to the planned cost.

The co-authors of an article, S. Khrinlian, A. Badalian, and O. Karchikian (Armenia) write that it is incorrect to include in the cost of kolkhoz production that part of the net income which is distributed on the basis of workday units. It is impossible, however, to account directly for the share of net income and differential rents which is to be distributed per workday unit in kolkhozs. For this reason, the authors feel it is possible to evaluate the payment per workday unit on the basis of the average wages of sovkhoz workers of corresponding branches and in terms of the actual payment per workday unit. The cost of kolkhoz production may be expressed in terms of two exponents — workday units and money. Simultaneously, the cost of production may be expressed in terms of a single exponent by converting the payment of labor into monetary value; this must be done in order to arrive at indexes which can be compared on the basis of several years in a given kolkhoz. In order to evaluate workday units according to the average wages of sovkhoz workers, workday units must be converted into man-days.

The authors write that the net income created by the labor of MTS workers enters into payments in kind for MTS work, aside from the remuneration of expenses made by the government. Therefore, it is necessary when calculating the social cost of kolkhoz production, to show the actual expenses of MTS for the output of a given product, instead of the payments in kind. When calculating the individual cost of their production, kolkhozs should consider payment in kind for MTS jobs as material expenses. These should be evaluated, the authors propose, on the basis of cost; seed — on the basis of procurement or purchasing prices, and fodder — on the basis of cost. Amortization expenses which are distributed over separate crops according to the assignment of the principal funds, must be considered as material expenses also. The amortization of constructions destined for the whole collective are distributed over separate crops and branches in proportion to the number of workday units performed.

P. D. Maksimenko (Rostov-on-Don) notes that the existing system of payment of labor in kolkhozs is retarding the study of kolkhoz economics. The multiplicity of prices for agricultural products also stands in the way of this purpose. The author feels that when a system of paying labor both in money and kind exists in kolkhozs, the evaluation of live labor on the basis of actual grants, no matter what price is applied, will not reflect the actual expenses for production; it will not make it possible to compare the level of cost among adjacent kolkhozs and sovkhozs, as well as within a single kolkhoz on the basis of different years. Therefore, he proposes to introduce a system of paying kolkhoz labor according to definite norms with additional payments for qualitative and quantitative indexes in the way of a bonus. Such a system of guaranteed payment for the workday unit may be the transitional step to payment of labor in money in kolkhozs, and to the accounting of labor in terms of man-hours and man-days.

In order to study the dynamics of the physical scope of agricultural production and productivity of labor, it is necessary to introduce prices for agricultural production which can be compared. It is essential to establish firm wholesale prices for a unit of production, according to its quality. Expenses for delivery must be accounted for by the government in the difference between retail and wholesale prices. The author proposes that a differentiated tax be established so that kolkhozs which have the best natural and economic conditions will pay a greater percentage to the government than kolkhozs which are situated in less favorable conditions.

I. F. Chekunov (Tselina Station, Rostov region) writes that one of the obstacles to the determination of the cost of kolkhoz production is the multiplicity of prices. The author proposes to establish unified prices for kolkhoz production according to zones. These prices must be used in transactions with the government. When a product is placed on the consumer market, it is necessary to establish various percentages of budget entries. Such accounts may be made when these sums are paid out to kolkhozs. This will make it possible to change from measurement gauges in kind and multiple prices to a system of monetary evaluation and to a single price.

Comrade Chekunov puts forth several propositions for the improvement of the payment of labor in kolkhozs. In the beginning of the year, he writes, the kolkhoz knows what amount of production and what sum of money will be distributed among the collective farmers if the economic plan is fulfilled. Having evaluated the production at, let us assume, government purchasing prices, the kolkhoz has data in money units concerning what the grants per workday units should be. The number of workday units needed for the fulfillment of the comprehensive total of tasks is calculated; a reserve for work not foreseen by the plan is added to this number. The division of the sum of money by the number of workday units gives an evaluation of the workday unit in rubles for the whole year (in case of harvest failure, there must be corresponding funds in the kolkhoz). After the kolkhoz has computed the number of workday units, the kolkhoz makes a monthly payment in money on their basis; if the members of the kolkhoz wish, the kolkhoz guarantees grants in kind within the limits to which distribution is subject. A firm evaluation in money of the workday unit (in a manner similar to government limitation upon the wages fund) will limit the number of workday units in all the subdivisions of the kolkhoz. This will be an incentive for the increase of the productivity of labor and will also allow a more accurate calculation of cost.

M. Faizov (Stalinsk, Kemerovo region) does not agree with the economists who contend that the method of calculating the cost of production in kolkhozs must be differentiated from the method of calculating the same in industry. The author feels that the difficulties involved are only of a practical order, which result from the imperfection of the accounting system and from incorrect evaluation and payment of labor in kolkhozs.

The author considers that the cost of kolkhoz production consists of actual expenses for the output and realization of a given product — notwithstanding character — and must be expressed in money. He does not agree with the method proposed by Comrades Venzher, Nesmi and Terentiev. In his opinion, arbitrary accounts are not only difficult, but, also, they do not reflect the particularities of each kolkhoz, the level of productivity of labor, etc.

Comrade Faisov writes that it is wrong to consider the workday unit an element of cost when calculating the cost of kolkhoz production. The workday unit does not correspond to wages (the former includes differential rents, for instance), but rather is a particular method of evaluating the work of the collective farmer. It is only a gauge for the distribution of income and cannot be used as one for evaluating the amount of work performed by a collective farmer. The author assumes that wages paid out according to the quantity and quality of work of each collective farmer are the only correct element of the cost of production. Therefore, he proposes to use the sovkhoz experiment and then to change in kolkhozs to a tariff system of labor payment with a seven-part scheme. In order to accomplish this, it is necessary to elaborate unified technical norms of production for all kolkhozs.

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A survey of articles submitted to the editors shows that the method of calculating the cost of production is still controversial in many of its aspects. This also applies to the system proposed by the All-Union Scientific Research Institute of Agricultural Economics. As it can be seen from several articles, this method has substantial defects. Apparently, the use of arbitrary norms did not yield the desired results simultaneously with the introduction of self-supporting economy into kolkhozs; this demands an accurate account of actual expenses. Nevertheless, this does not exclude, indeed, it implies the utilization of normative accounting of expenses for other purposes (planning of prices on the basis of zones, etc.).

One of the goals of the science of economics is to elaborate rational methods of accounting and of labor organization indispensable for the lowering of cost, and the increase of production. In this connection, the experimental work of several authors in verifying the effectiveness of some methods of accounting and planning of cost in various kolkhozs is of great importance. If one analyzes the principal trends characteristic of the majority of the articles examined in this review, several general conclusions can be drawn. One of these would be that the difficulties in calculating the cost of kolkhoz production are apparently caused not by the particular prerequisites placed upon a method of accurate and simple calculation alone. The solution of the problem which lies before agrarian economists is made complicated by conditions of interdependence between kolkhozs and MTS at the present stage.

The formulation of a method for the calculation of cost is also complicated by the presence of such a factor as payment in kind in return for MTS services. The evaluation of the workday unit in monetary value presents considerable difficulty. One must also keep in mind the multiplicity of existing prices for agricultural production. Today, the question of radically reorganizing MTS work is timely. This, naturally, will cause corresponding changes in the system of computing the cost of agricultural production.

It is important to note that in many articles mentioned in this review, the necessity is stressed, either directly or indirectly, of substituting unified prices for agricultural production for the many existing prices (procurement, purchasing, contracted) while keeping, of course, a zonal differentiation of prices. There can be no doubt that in the event of the introduction in the future of unified prices, in addition to other economic advantages, the possibility will arise of improving and simplifying the method of calculating both the planned and the actual cost of kolkhoz production.

S. Stepanov:

Increasing the Role of Innovators and Inventors in Improving Socialist Production

Our country has all the necessary conditions available for the solution of the basic economic task in historically the shortest time. Thanks to the radical advantages of the socialist system of economy, the Soviet Union is rapidly overtaking the most developed capitalist countries in per capita production. An important stage in accomplishing the basic economic task of the USSR will be the realization of the majestic program of development of the Soviet productive forces outlined by the 20th Party Congress. The reorganization of the management of industry and construction had great significance for the successful realization of the tasks of the 20th Congress of the Communist Party of the USSR.

The creation of economic councils in the economic administrative regions is an event of very great political and economic significance in the life of our country. This is one of the outstanding measures taken by our Party in recent time, and completely justified itself. The economic results of the past year show convincingly that the decision of the Central Committee of the CPSU on the reorganization of industrial and construction management, intended to advance the national economy to a new, higher stage, was quite correct and timely. This is confirmed by the data on the Sverdlovsk economic administrative region. Industry of the Sverdlovsk region successfully coped with the task, and the 1957 plan for gross output was fulfilled ahead of time — on December 21. As a result of the introduction of new technique, spreading the foremost industrial experience, raising the qualifications of labor in the enterprises of the economic council, in 1957 three-quarters of the increase of industrial output resulted from the growth of labor productivity. The labor productivity plan was fulfilled by all branches of production and overfulfilled by more than 2% for the economic council as a whole. The state housing plan was considerably overfulfilled: in 1957 22% more floor-space was turned over than in 1956. The plan for lowering the cost of production of commodities was also fulfilled and in 1957 accumulations higher than was planned were achieved, namely in the sum of 160 million rubles. The socialist pledges on new technique were realized; the enterprises of our economic council produced more than 200 models of highly efficient machines and mechanisms, as well as of precision instruments for various purposes.

Under the leadership of the Communist Party the toiling people of our country achieved great successes in raising labor productivity in all branches of the national economy. Further improvement of the work of the enterprises and construction projects of the economic council largely depends on the initiative and activity of the leading workers of local organizations. Great tasks in increasing the output of the operating enterprises, in organizing serial production of new machines and introducing advanced technology face the Sverdlovsk economic region.

The economic council of the Sverdlovsk economic region has set for itself the task of achieving unconditional fulfillment of the state plan and more complete utilization of reserves by enterprises. This task must be executed with the minimum capital investment, which is possible only by raising the level of leadership through socialist competition of the workers and creative activity of the rationalizers and inventors and industrial innovators.

At the end of 1957 a regional conference of rationalizers, inventors and industrial innovators met in Sverdlovsk. About 900 people — workers, foremen, engineers, scientific workers, managers of enterprises, representatives of Party and Soviet organizations and of trade unions — participated. This conference took place in a period of great activity of the delegates, who boldly and sensibly revealed the defects in the field of the rationalizers' and inventors' work.

The first convention of engineers and technicians of Sverdlovsk region, which took place in November, 1957, and also the conference of inventors, rationalizers and industrial innovators, promoted the intensification of the creative activity of the foremost people in industry, construction and transport, directed toward the maximum utilization of existing reserves. For some time the role of rationalizers and inventors, the tireless advocates of technical progress, has been steadily growing. Many enterprises in our region have already achieved great successes in spreading the rationalizers and inventors movement. Making their creative contributions in the matter of technical progress, Sverdlovsk innovators achieved considerable results in developing certain branches of socialist production. The production records of hammersmith T. L. Oleinikov of the Urals machine-building plant; excavator-machinist and Hero of Socialist Labor E. M. Myshko, gasoline frame-saw operator at the Otradnovsk timber enterprise; Hero of Socialist Labor I. E. Bachinin; electric locomotive engineer V. E. Ladochkin; V. N. Lukyanov, a steel founder at the Nizhy Tagil metallurgical combine, and many others are known far beyond the bounds of our region. By their example they attract workers into the rationalizers and inventors movement and help increase the ranks of industrial innovators.

In industry, construction and transport in Sverdlovsk region about 50,000 workers, engineers, technicians and other employees participate in rationalization and invention. In ten months of 1957 alone more than 80 thousand proposals were made and this led to a considerable increase in labor productivity through more complete utilization of the resources of the enterprises, introduction of new technology, raising the level of mechanization of production and improvement of working conditions. During this period about 45,000 rationalization proposals were applied, which gave rise to a saving of almost 270 million rubles. The working people of Sverdlovsk region fulfilled before the appointed time their socialist pledge to achieve an economy of 230 million rubles in 1957 through introducing and applying rationalizers' suggestions.

The collective of the Urals machine-building plant, one of the largest machine-building enterprises of the whole country, achieved good results in the development of the movement of rationalizers and inventors. Through the introduction of rationalization proposals some 30 million rubles were saved. The weight of the machines manufactured at this plant was lowered by almost 2,000 tons. The plant is successfully fulfilling the plan for increasing labor productivity. At the Urals car-building plant during 1957 about 3,000 proposals were introduced in operation and more than 14 million rubles saved. Work with rationalizers at the Urals turbomotor plant was improved, with the result of a saving of over four million. At the Urals chemical machine building plant the annual economy resulting from rationalization measures in production amounted to three million rubles. One must point out that these enterprises are systematically fulfilling the task of increasing labor productivity. As the result of better work among inventors and rationalizers of the collectives at the Pervouralsk tube-casting plant, the Kirovograd copper-smelting combine, the Sverdlovsk plastics factory, the Krasnogorsk thermo-electric center, enterprises of the Tagilstroi construction trust, the Ural-obuv factory, the Soyuz-asbest trust, the Sverdlovsk railroad division, and others, good results were achieved.

At many foremost enterprises of our economic region competitions for the best rationalizers' proposal and the best results of work are announced, public reviews of industrial achievements are held and conferences and seminars of rationalizers are arranged. The success of any business depends on work with the people. The cadres of rationalizers with initiative have to be prepared with care; the feeling of creative fervor and daring should be developed in them. Well known among the rationalizers in Sverdlovsk region is J. I. Gorn — brigade leader of the locksmiths at the Pervouralsk tube-casting plant; to his personal credit are listed more than 70 proposals, which altogether contributed savings of over 700 thousand rubles. For 1957 alone Comrade Gorn received 9,900 rubles as author's fee. The electrical locksmith of the Bulansh 2-5 coal pit of the Yegorshino-ugol trust, A. I. Shapovalov, has worked out a scheme for automatic control of the scraper-conveyers with an electonic time relay and a scheme for automatic electronic control over filling the coal-pit bunkers. By using this proposal about 300,000 rubles were saved and labor productivity increased 6%. Comrade Shapovalov received the author's fee and premium in the total sum of 8,500 rubles. Very considerable success was achieved by foreman I. A. Anikin, who introduced technical improvement in the driving mechanization of the anode pintles of electrolytic baths. This allowed eliminating the hard manual work in that operation and decreased the expenditure of working time by almost half. The engineer N. P. Boyarskikh, working on the press at the Urals machine-building plant, worked out and installed many rationalization proposals, including a pneumatic drive for the rotary plate of the press, which has secured a considerable growth of the productivity of this equipment. N. P. Shust, a technologist at the Tavdinsk plywood combine, has worked out a transverse conveyer lathe for gluing together the edges; the effect of its utilization saved more than 150,000 rubles.

Lately the method of solving important technical problems through complex brigades of rationalizers has been widely used. Thus, for instance, a group of engineer-technologists working at the Siberian papermill — Comrades Smyslov, Ivanov, Lyskin, Brylin, Sergeyeva and Alyabyev — proposed to use sodium-chloride in the production of parchment instead of glycerine, which is in short supply; this saved 800,000 rubles in a year. Comrade Kusevanov, steel founder of the Urals machine-building plant and one of the winners of the Komsomol youth competition of machine-builders, together with foremen Taraskin and Yeremeyev improved the technology of steel smelting by utilizing high-alloy waste. This proposal secures more than 140,000 rubles in savings. A group of rationalizers at the Krasnogorsk T-E-C—Comrades Polyakov, Zhelamsky and Dzuba — altered the operation of the burning apparatus of the boiler fire-chamber, adapting it to the use of a new type of coal. Savings from this amount to 200,000 rubles a year. At the Pervo-Kamensk furniture factory Comrades Ovsyanikov and Lykov proposed a lathe for simultaneously bending and gluing together the details of furniture. This gave a saving of more than 100,000 rubles.

The creative labor of the rationalizers and inventors is generously rewarded by the state. Thus, for instance, during six years 39 proposals by Comrade Shutov, shift foreman of the Urals machine-building plant, were applied which effected a total saving of 610,760 rubles. For that period he received more than 10,000 rubles as author's fee. His new proposal for replacing forged or cast steel linings by linings made of fire-brick with steel spread in between was applied to ten heating furnaces, increasing their reliability many times: annual economy — 293,000 rubles. At the Bogoslovsk aluminum plant the "pigs" were marked by hand. Foreman Comrade Sivkov constructed an automatic device for stamping (marking) the aluminum pigs on different machines. This proposal was classified as a technical improvement. The annual saving from using it amounted to 102,970 rubles. The author received a fee of 5,250 rubles. The description of this proposal was sent to the Committee on Inventions and Discoveries of the USSR Council of Ministers as a claim to an invention. At the Revdinsk nonferrou metals plant the electrician Comrade Vassiletz proposed a mechanism for drawing out the thin tubes when justifying them by machine. This operation used to be performed by hand. The economic effect of using this proposal amounted to 66,000 rubles. The author of this technical improvement received 3,630 rubles as a fee.

One can cite a number of examples of innovators' genuinely creative approach to solving the most important problems in further perfecting production. Thus, at the factorie in Sverdlovsk region the initiative of engineer Gulyayev, foreman at the Urals chemical machine building plant, is disseminated; together with the workers he is constantly improving technological processes. The local committee of the CPSU and the economic council approved the initiativ of the collective of the foundry at the Urals chemical machine building plant and instructed the directors of various factories and plants to support and widely disseminate this initiative. When preparing for the transition of the Nizhny Tagil metallurgical combine to a seven-hour working-day, many bottlenecks were revealed in some shops which delayed the implementing of this measure in a number of important sectors of production. A special month was assigne for rationalization and invention, and this permitted solving some important production problems; for instance, switchin blast-furnace wheel-rolling and coke-chemical production to the seven-hour working-day without additional labor power.

Favorable conditions for the development of a mass rationalizers and inventors movement exist in our country. Where the managers of enterprises and Party, Komsomol and trade union organizations pay attention to this movement, it brings tangible results.

The technical directors of enterprises and construction projects are expected to lead the creative activity of inventors and rationalizers and orient it in every possible way toward increasing labor productivity. Comrade Dyakov chief engineer at the Urals footwear factory, is helping inventors and industrial innovators a great deal. He organized an experimental shop, where the proposals planned by the rationalizers could be checked. At the Urals machine-building plant there is an interesting project — a circle of young rationalizers. The outstanding rationalizers pass their rich experience to the young workers, show them how to approach the solution of one or another production problem. Comrade Ladeischikov is using various forms and methods of mass organizational work with the rationalizers and inventors, orienting their activity to solving urgent problems in production. There is an experimental shop at the plant where experimental models of a proposed mechanism, aggregate or machine can be tested.

A most important role in organizing inventiveness and rationalization belongs to the trade union organizations and their commissions on promoting mass inventiveness and rationalization. At many enterprises in our region the factory and plant committees and their promotion commissions have improved work with rationalizers and inventors. Thus, for instance, the commission of the factory committee of the Pervouralsk tube-casting plant is working very well. The experience of this commission was discussed at a seminar in October, 1957. Actively engaged in this work are the commissions of the Vysokogorsk mine, the Pyshminsk copper-electrolyte plant and the asbesto-cement technical articles plant in the city of Asbest, and other enterprises. These commissions are uniting the worker-innovators, engineer-builders, foremen, technologists and economists.

During the preparations for the celebration of the 40th anniversary of the Great October Socialist Revolution at the industrial enterprises and construction projects of the Sverdlovsk economic administrative region several competitions were announced and public reviews of rationalization and invention work were held. Thus, some 3,000 young rationalizers participated in the competition of the Komsomol and other youth in machine-building enterprises. Two thousand five hundred proposals were accepted, resulting in savings of almost 19 million rubles. Judging the results of these competitions the Sverdlovsk regional committee of the Komsomol awarded first place to the Komsomol youth collective at the Urals machine-building plant.

But it would be wrong to think that at every enterprise and construction project normal conditions for the work of inventors and rationalizers has been created. Among the most serious defects here are the long periods of examining and especially of applying the rationalizers' proposals. Up to November 1st, 1957, over 6,000 proposals were waiting for examination at different enterprises of the economic council and 19,000 proposals which had been judged useful had not yet been utilized. A considerable number of rationalization proposals remain unused for a long time because there are no experimental bases at the enterprises. In some places the acting law is violated and the rights of the authors sometimes are infringed. Thus, for instance, the inventors of a special chisel did not receive their remuneration for a long time.

A serious defect is the formal attitude in some enterprises to preparing the subjects of the tasks for rationalization. Sometimes problems for which a solution has already been found at other enterprises, and even described in literature, are included in the list of topics.

It is necessary to link the problems of rationalization and invention closely with the plan for organizational technical measures which are worked out at the enterprises.

In the development of mass inventiveness and rationalization an exceptionally great role belongs to the factory workers' invention bureaus. But at certain enterprises their importance is minimized.

A serious defect in the development of mass inventiveness and rationalization is the lack of a uniform practice in applying the existing laws on inventions. Many enterprises have instructions on inventions compiled by different ministries and departments. These instructions often contain erroneous clauses. Some points in them even contradict the acting law on inventions, sometimes plainly infringe the rights of the authors, especially in terms of time and determining the amount of remuneration. In connection with the reorganization of the management of industry there arose the necessity of working out a uniform statute concerning the application of the acting law on inventions. It must be emphasized that for the further development of the rationalizers and inventors movement the intensification of the material interest of the authors of proposals, improvements and especially inventions has a uniquely great importance. The acting law insufficiently stimulates more liberal utilization of proposals. At the same time the amounts of remuneration for those workers who promote rapid and large-scale operational introduction of the rationalizers' proposals, technical improvements and inventions is inadequate.

In the technico-economic department of the Sverdlovsk Economic Council a special section on improvement of work with inventors and industrial innovators was organized. On the initiative of this section brigades for checking on work with inventors were formed. They have investigated 70 enterprises of ferrous and nonferrous metallurgy, machine-building, the lumber industry, etc. The observations and suggestions collected by them served as the foundation for the "Provisional Regulations on Organizing Work with Inventors and Rationalizers in the Enterprises of the Sverdlovsk Economic Council." These Regulations were discussed by the technico-economic department and approved by the economic council. They define the order and time limits for consideration and application of the proposals of inventors and rationalizers. In the industrial enterprises and construction projects, in institutions and organizations, the proposals have to be considered within ten days beginning the day of their presentation; in the trusts not later than 15 days; and in the branch departments of the economic council within 20 days. Responsibility for the organization of work with inventors and rationalizers is entrusted to the chief engineers of the enterprises. To assist them, special workers are appointed who take care of the problems of inventions (one to eight men in enterprises with 500 workers and more, according to the number of workers, engineers, technicians and other employees). When summing up the results of work in the shops and sections of the enterprises, the fulfillment of tasks of rationalization work will be taken into account along with the basic indices. These Regulations provide for establishing experimental sections at large-scale enterprises for working out and testing the most effective of the rationalizers' proposals. At the central Technical Information Bureau a commission of experts and technical consultants is being organized. The Regulations explain certain questions on applying the acting law on inventions and rationalization; for instance the schedule of paying the authors' remuneration, the order and time limits for utilization of the proposals, formulating claims on inventions and rationalizations, etc.

The tasks for the rationalizers and inventors are determined first of all by the urgent needs of the enterprises. Let us consider, for instance, the problems of improving the utilization of the balance of power. It is known that the power balance of the Sverdlovsk economic region is very strained, though some enterprises, like the Bogoslovsky aluminum plant, the Krasnouralsky copper-smelting plant and the Kamensk-Urals nonferrous metals processing plant, consistently use too much electric power. Thus, the Bogoslovsky aluminum plant during nine months of 1957 overexpended electric power amounting to 23.9 million kilowatt-hours, i.e., as much as is needed in a whole month by such a giant as the Urals machine-building plant. For the rationalizers here there is a wide field of activity on finding how to economize on electric power. At this same Bogoslovsky aluminum plant the cause of overexpenditure of electric power is systematic disruption of the technological process, unsatisfactory exploitation of the arc smelting furnaces and the poor quality of work on welding contacts. These defects could be eliminated without expenditure of capital investments through rationalization of production.

An important reserve for improving the fuel balance is in utilization of secondary power resources (gases from the blast furnaces and coke, the heat of wastes, etc.). For instance, at the Serovsk metallurgical plant eight Martin open-hearth furnaces were put on evaporating cooling; this produces 18,000 tons of steam in a year and replaces 6,000 tons of coal. It must be admitted that a number of enterprises which have Martin open-hearth furnaces — the Nizhny Tagil combine, the Seversky metallurgical plant, the Urals machine-building plant — still do not utilize this important reserve, though no considerable capital investments are required for it.

There are also reserves in the casting and forge shops of the machine-building enterprises in the region. Not enough attention is paid to problems of mechanization of production in the casting shops. For instance, the percentage of steel cast in casting machines is 85% in our economic region, while for cast iron it is only 37%. Every plant, every shop has extensive possibilities for increasing labor productivity. The qualitative indices of work in similar shops are different. For instance, in steel smelting the annual output per worker on muster-roll was from 12 to 50 tons. Through just improving work in a number of steel-smelting shops the deficit in steel smelting could be decreased considerably.

Our region is still behind a number of foremost enterprises of the country in utilization of productive power in the metallurgical combines. The coefficient of utilization of the payload of blast furnaces at the enterprises of our economic council for 11 months of 1957 was only 0.78, i.e., much less than at the Magnitogorsk metallurgical combine. At the same time at the Serovsk metallurgical combine this coefficient was 0.65 — i.e. much better than in Magnitogorsk. Such a gap between the coefficients of utilization of the payload of blast furnaces testifies to the existence of large reserves for increasing the smelting of pig-iron at the disposal of the metallurgists of our region.

For too long equipment remains idle. In ten months of 1957 the excavators for coal extraction were idle for more than 75,000 hours. If this could be decreased even by half, about one million tons more coal could be extracted with the same machinery.

Rationalizers and inventors should strive first of all to achieve more rational expenditures of raw materials, fuel and power, and better utilization of equipment and cutting down spoilage. At a number of enterprises and construction projects in our economic region considerable losses of material values can still be observed: waste is too great, railroad cars and equipment remain idle too long, spoilage is intolerably high, etc. The rationalizers have before them the task of developing the struggle for economy. Lowering production losses in the region as a whole by only 1% would give the state several tens of millions of rubles' economy. Serious tasks also face them in perfecting machines and working out new technology.

The inventors and rationalizers need serious daily help. In order to raise the rationalizers' role in perfecting production processes and creating new techniques and modern technology, it is necessary decisively to improve the exchange of experiences in organizing rationalization and inventiveness at enterprises.

At each enterprise specific lists of themes should be worked out and engineers should be assigned for the most important programs. It is necessary to improve the work of consultants and technical bureaus and to organize experimental shops. A system of centralized registration for receiving and processing rationalizers' proposals should be established at the plants and factories; this would avoid parallel work in different shops. The plants and factories should be quickly informed about valuable proposals and changes in the design of machines. The directives of the 20th Congress of the CPSU stressed the necessity of developing in every possible way the mass movement of rationalizers, inventors and industrial innovators; as well as of securing broad propaganda and dissemination of advanced experience.

One of the basic tasks of the leaders of management in the branches of production and at enterprises is improvement of the exchange of experience. This is one of the best methods of dissemination and application in production of the newest achievements of science and technology. In order radically to improve work on exchanging advanced experience a Central Technical Information Bureau was set up in our economic council. The main tasks of this bureau are: the study, generalization and dissemination of the experience of the best rationalizers, inventors and industrial innovators visual demonstration of their achievements, publication of brochures, posters and other information materials. It is also necessary to improve technical information at plants and factories. It is not rare that workers in one shop do not know what is new in another shop.

The regional conference of rationalizers, inventors and industrial innovators adopted an appeal to the rationalizers, inventors and industrial innovators of the entire Soviet Union. The conference participants challenged all the workers of Sverdlovsk region to increase labor productivity in 1958 by 2% over the quota through improved organization of production and higher technical equipment of labor. This will allow an increase of output of approximately 700 million rubles, a saving of at least 40,000 tons of metal, at least 150,000 tons of conventional fuel and 250 million kilowatt-hours of electric energy. It will be possible to establish a Peace Fund for rationalization and to invest 500 million rubles in it, saved by introducing rationalizers' proposals, improvements and inventions. It is also possible to achieve the goal that every fifth worker be a rationalizer.

The report of Comrade N. S. Khrushchev at the jubilee session of the USSR Supreme Soviet posed new tasks for the further mighty growth of the national economy. Calculations by our planners show that in the next 15 years our country can not only overtake but even surpass the present-day volume of output of the principal products in the US.

Inspired by the grandiose tasks laid down by the Party, the collectives of our enterprises are striving to improve production, its specialization, complex mechanization and automation, introduce advanced technology and raise the level of production. The builders at the Urals machine-building plant, the Urals electrical equipment plant, the Urals chemical machine building plant, the turbomotor plant, the Urals car-building plant and other enterprises are working to perfect the machines and raise their productivity, economy and operating reliability. The creative activity of inventors, rationalizers and industrial innovators among the workers of Sverdlovsk region is directed toward increased labor productivity, faster technical progress and introduction o new techniques and advanced technology for the solution of the problems posed by the Communist Party and the Soviet governme

I. Veremkroit and A. Morozov:

An Index of the Utilization of Basic Production Funds

We consider that one of the indices for planning and evaluating the economic activity of enterprises and construction should be an index of the utilization of production funds. This should be used with indices of volume and profitableness. In the beginning a planned normative index of utilization of the basic production funds could be worked out according to types of production in the framework of the given economic administrative region; it should be differentiated for each enterprise of the extracive industry, the building materials industry and industries with a small assortment of products. Taking the oil industry of our economic region as an example, behind the index of overfulfillment of the plan for extraction and output per worker there is concealed the retarded transfer of capital investments, into the basic production funds. Proceeding from the established norms of amortization — 10% per annum (together with capital repairs) — and the expenses of amortization amounting to 20 rubles per planned cost of one ton of oil, the output of oil (together with gas) should be five tons per every thousand rubles of basic production funds of the Oil and Gas Industry Administration of the Krasnodar Economic Council. Actually in 1957 the output of the basic production funds per thousand rubles was 3.1 tons. Though it was 18% higher than in 1955, now it is only 64% of the level which is necessary for replacement of the capital expenditures actually made.

Such a discrepancy between the seemingly favorable fulfillment index of the plan and the index of effectiveness of capital investment confirms once more the imperfection of planning production based only on reports.

The timeliness of freeing the resources tied up in capital expenditures actually does not depend on the ruble. As a matter of fact, the planning of amortization expenditures and the inclusion of these expenditures in the planned cost of production are not normalized and are established mechanically according to the value of the basic funds, independently of the planned volume of output. This results in the increase of capital expenditures and in lowering the production plans.

In the brickyards of the Krasnodar economic administrative region, which we investigated, the annual output per thousand rubles of basic production funds fluctuates: in the Ilsk brickyard it was 1,430 bricks; in the Pashkovsky brickyard 2,120 bricks; in the Krasnodar brickyard No. Two 3,300 bricks. The analysis shows that such sharp fluctuations in output per thousand rubles of capital investment is explained not so much by the lack of coordination in evaluating basic funds (almost the entire industry of Kuban was reconstructed anew after the war) as by the different approaches to the solution of technical construction problems of enterprises and production organization. In those cases where the monthly output of one cubic meter of kiln is higher, the return per thousand rubles of basic funds is higher, all other things being the same. In the Varenikov brickyard the output per cubic meter of kiln is 1,113 bricks per month. Per each thousand rubles of basic production funds the output here was 1,650 bricks. At the same time in the Pashkovsky brickyard, where the output was 1,432 bricks, the output per thousand rubles of basic funds was 2,120 bricks.

Certainly there is no direct proportionality because of differences in location of the enterprises and connected differences in profitableness, resulting in unequal output per thousand rubles of basic funds. A higher output per cubic meter of kiln also does not mean that in such case there are no excesses in capital expenditures. For instance, in the Ilsk brickyard the output per thousand rubles of basic funds was only 1,430 bricks.

Calculations show that under the conditions of the Krasnodar economic administrative region with an appropriation norm for amortization of five percent per annum and planned expenditures for amortization of 17 rubles per thousand bricks, the average progressive index of output per thousand rubles of basic funds should be about 3,000 bricks per year.

Each enterprise has reserves for exceeding this norm. For instance, at the Pashkovsky brickyard, by extending the work time of the kiln by 25 days and increasing the output up to the level of certain periods (1700 bricks per month) it would be possible to increase the output by four million bricks without additional capital expenditures and to bring the output per thousand rubles of basic production funds up to 3,500 bricks.

The calculations cited above show that the Krasnodar Economic Council can establish the following average progressive indices: for the Oil and Gas Industry Administration — five tons of oil per thousand rubles of basic funds, and for the Building Industry Trust an average annual output of 3,000 bricks.

In turn the Oil and Gas Industry Administration, the Building Industry Trust and other departments and trusts of the economic council, for which these average progressive indices would be worked out, should differentiate them by enterprises, considering their location, peculiarities in regard to basic funds and various other factors.

Besides, if the system of wages and premiums to the managerial, engineering and technical personnel depended on the fulfillment of the output indices per thousand rubles of basic production funds (along with other indices) this would promote a better revelation of the reserves of the enterprises, would overcome the tendency for lowering the plans of production and would create personal interest for the economic managers, engineers, technicians and workers in the increase of output through a more complete utilization of the production funds. At the same time it would stimulate a rational use of capital investments and increase their effectiveness.

The establishment of norms of output per thousand rubles of basic production funds would make it possible

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to evaluate and calculate more correctly labor productivity and to consider the expenditures not only of living labor, but also the economy or excess of expenditures of the labor embodied in commodities.

Academician S. G. Strumilin in his work "Economic Problems of Automation in Industry" and Professor G. A. Shaumian in his article "Complex Automation in Machine Building and Its Economic Effectiveness" show what great miscalculations result from ignoring the expenditures of past labor when calculating labor productivity. On the other hand, if one has the data on output in natural indices per thousand rubles of basic production funds, one can calculate more correctly the productivity of social labor (ignoring the expenditures of circulating funds, the specific weight of which is not high in the extractive industry. For instance, it is easy to find through calculation that in the Ilsk brickyard, where the output per worker is 24.5% higher than in the Krasnodar Brickyard No. Two, the productivity of social labor is 46.1% lower.

Applying in practice this method of calculating the index of labor productivity (coefficient of productivity of living labor multiplied by the coefficient of the output per thousand rubles of basic production funds) our planners, managers and designers would have a more correct criterion for evaluating the activities of enterprises and determining the effectiveness of capital investments—those realized, as well as those planned.

Using this methodology, one can determine the level of economic effectiveness of production more correctly, i.e. compare the economic advantages of certain methods of utilizing technology and organization with others. Raising the effectiveness of capital investments, and more correctly calculating norms for utilizing the basic production funds and labor productivity are connected to a certain extent with overcoming defects in the practice of calculating appropriations for amortization and evaluating the basic funds. Thus the new textbook "The Economics of Soviet Industry" indicates, in particular, that amortization "reflects the productive consumption of instruments of labor in the form of value" (page 232). But anybody working in industry knows that appropriating money into the fund of amortization does not mean the productive utilization of the basic funds. The definition of amortization, cited above, is the result of identifying the conception of planned restoration (turnover) of the value of the basic funds and their actual use. It disorients the practical workers and does not promote strengthening self-support in enterprises.

In the above textbook and on the pages of "Problems of Economics" a number of economists, formally admitting moral wear and tear of the basic funds in our economics, actually defend the conservative idea regarding the impossibility of having this factor reflected in the system of indices for self-supporting enterprises and in the norms of amortization.

The establishment of differential indices of utilization of the basic production funds will help to solve in a practical way the problem of amortization. The process of calculating these indices will reveal to what extent the existing norms of amortization correspond to the demands of technical progress, to the level of utilization of technique at the foremost enterprises and also to the time necessary for the replacement of the value of basic funds. Along with this amortization will play a greater role in strengthening the trend towards self-supporting enterprises and control by the ruble over the replacement of the value of basic funds at the time planned, taking moral wear and tear into consideration. At the same time this practice will show that the regular renewal of the basic funds and the appropriation norms for amortization must be based on the experience of the foremost enterprises, which replace the value of the instrument of labor before the appointed time. All this would promote the effectiveness of capital investments in industrial production.

M. Kaikutov:

Material Incentives for Engineers and Technicians

In the struggle for the steady growth of labor productivity of greatest importance is the system of material remuneration, creating a direct personal interest in the increase of labor productivity on the part of workers in socialist production. The 18th Congress of the Party stressed the need for "correct organization of the wages of workers, foremen, engineers and technicians with proper material encouragement of the growth of labor productivity."[1]

The socialist system of remuneration for labor is based on the all-round consideration of the quality of labor, conditions of work, qualification of working people, etc. One of the peculiarities of the socialist remuneration of labor is that it stimulates the initiative of the working people and promotes the creative activity of the masses. In this connection the system of premiums has special significance.

The Decree on the work of the deputies of the Chairman of the SNK and STO pointed out the necessity of systematic study and preparation of measures for extending the system of premiums to the remuneration of all Soviet employees in general.[2] The system of premiums under the conditions of socialist society is a mighty stimulus in the struggle for the successful fulfillment of the grandiose tasks of communist construction.

The broad application of a properly worked out and scientifically substantiated system of premiums, taking into consideration the specific peculiarities of various branches of industry, creates favorable conditions for the manifestation of the creative abilities of every worker, engineer and technician and promotes the successful solution of the most important state tasks of industrial development.

In accordance with the problems laid before industry in the early years after the war, in the forties a system of awarding premiums to the managers, engineers and technicians of machine-building enterprises for the fulfillment and overfulfillment of the plan of production in the given nomenclature of product was established on condition of fulfillment of the plan of gross production and cost of production. The rules concerning the awarding of premiums which were approved in the forties played a great role in raising output in the postwar period.

The July (1955) Plenum of the Central Committee of the CPSU underlined the significance of the technical progress in all branches of the national economy. That plenum indicated that the most important task of the Party, Soviet and economic organizations in the field of industry is the all-round increase of the technical level of production.

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[1] "The Communist Party of the Soviet Union in Resolutions and Decisions of the Congresses, Conferences and Plenary Sessions of the Central Committee." Part III, 1954, p. 364.

[2] See V. I. Lenin, "Works," Vol. 33, p. 300.

Under such conditions the awarding of premiums to the managers, engineers and technicians of the enterprises should depend, in our opinion, first of all on the fulfillment by the enterprise of the plan of raising labor productivity.

The defect of the existing systems of premiums is that they do not consider the fulfillment of the plan of raising labor productivity. Not seldom this creates an indifferent attitude for the introduction of new technique and perfection of the technological process. In a number of cases the workers of an enterprise which has poorer indices of labor productivity receive higher remuneration in the form of premiums than the workers of enterprises with better indices of labor productivity. This can be seen on the example of two plants in the city of Ordjonikidze—the Kirov railroad car repair works and the electric equipment plant for tractors:

	Gross production					Plan of labor production in 1957 in % of 1956
	1956			Plan of 1957	Plan of 1957 % of 1956	
	PLAN	FULFILL-MENT	in % of the plan			
Kirov railroad car repair works	54.0	60.3	111.7	59.4	98.5	100.7
Electric equipment for tractors plant	30.15	30.17	100.1	43.25	143.3	116.0

The data of this table show that for the Kirov works the 1957 plan for the output of production was lower than the actually achieved level of production in 1956 with an insignificant increase in labor productivity (only 0.7%). Such planning does not mobilize the collective of the plant for revealing and utilizing existing reserves of production, for raising labor productivity.

The electrical equipment plant for tractors increased the output of production by 43.3% in 1957 along with raising labor productivity by 16%. And in 1956 this plant increased its output over 1955 by 42.6% and increased labor productivity by 28.4%. In the growth of labor productivity in 1956 this plant occupied one of the first places among the enterprises of the automobile industry of the USSR.

A comparison of the data on these plants for 1957 shows that at the Kirov car repair works, with a lower tempo of growth of labor productivity, the percentage of fulfillment of monthly plans was much higher than at the electrical equipment plant for tractors, as is seen from the following table:

	Kirov works	electric equipment plant
Jan.	116.0	107.4
Feb.	102.0	101.6
March	117.0	110.5
Apr.	119.0	101.9
May	105.6	100.2
June	113.4	100.5
Jul.	110.4	100.2

The electric equipment plant, having considerably increased the output of production campared with 1956, and having achieved higher labor productivity, fulfilled the 1957 plan by 100-102%, while the Kirov works fulfilled that plan by 112-115%. But the electric equipment plant undoubtedly works better, utilizing its reserves more completely. If the indices of labor productivity were considered in awarding premiums to the engineers and technicians, those in the electrical equipment plant would have received a higher remuneration in premiums.

Because under the existing rules of awarding premiums to the managerial personnel, engineers and technicians the indices of labor productivity are not taken into consideration and premiums are awarded only for the fulfillment and overfulfillment of the production plan of given nomenclature and the cost of production plan, the personnel of the Kirov works receive twice as much in premiums as those of the electrical equipment plant.

In many cases, under the existing system of premiums, the work of the engineers and technicians is paid for by an equalizing system. This system of awarding premiums does not mobilize people for achieving better indices of labor productivity. This is seen quite well by the example of two shops of the electrical equipment plant (see next page).

These data show: firstly, that the output of production in the press and assembly shops is the same; secondly, that with an equal output the press shop increased the number of workers in 1957 compared with 1955 by 22.4%, while the assembly shop by 46.7%; thirdly, in the press shop labor productivity increased by 30.5%, and in the assembly shop only by 8.7%.

The considerable growth of labor productivity of the pressers was achieved as the result of persistent effort of the engineers, technicians and workers in introducing automation and mechanization of the production processes and improvements in technology. In 1957 alone the press shop collective achieved conditionally almost 200,000 rubles economy for the year through the introduction of organiza-

	1956 in % of 1955		1957 in % of 1955	
	press shop	assembly shop	press shop	assembly shop
output of production	123.3	119.3	159.7	159.5
output per worker	112.0	103.5	130.5	108.7
average number of workers	110.5	115.2	122.4	146.7

tional-technical measures and rationalization proposals, while the assembly shop, having an equal number of workers, achieved only a 20,000 to 25,000 ruble economy. In spite of the fact that the press shop collective achieved considerably better results than the assembly shop collective, the engineers and technicians of both shops receive the same premium remuneration (16% for the fulfillment of the plan and 1.5% for each percentage of overfulfillment of the plan). If the engineers and technicians would receive premiums for the growth of labor productivity, those in the assembly shop would not seek to fulfill the plan only by increasing the number of workers, but would take measures for increasing the output of production.

Similar situations obtain in other enterprises and branches of industry, for the basic principles of awarding premiums are the same. They cannot but be a hindrance in the struggle for securing the further growth of labor productivity and for a better utilization of the reserves of production.

In our opinion, the existing rules for rewarding premiums to the managers, engineers and technicians of the enterprises should be improved. Premium rewards should depend on the fulfillment of the plan and on labor productivity. It seems to us that no premiums should be awarded for the fulfillment of the output plans as an addition to regular remunerations because there are now very few enterprises which fail to fulfill the plans. Yet according to the existing rules the main part of the premiums is awarded for the fulfillment of the production plan. For instance, the director of a second-category machine building plant receives 22% of his monthly salary rate for the fulfillment of the plan, the shop and section superintendents and the foremen 16.5% and for each percentage of overfulfillment correspondingly 2 and 1.5%. Retaining the existing general amount of premiums, they should be awarded according to the following scheme: 1) for each percentage of overfulfillment of the established plan of output, pay: to the director of the enterprise — 4% of his basic salary; to the superintendents of shops and section, to the foremen and other categories of engineers and technicians — 3%; 2) for the fulfillment of the plan of lowering the cost of production: to the director of the enterprise — 4%, to the others — 3%; 3) for the fulfillment of the plan of labor productivity: to the director of the enterprise — 4% and to the shop superintendents and others 2%; 4) for each percentage of overfulfillment of the plan of lowering the cost of production: to the director of the enterprise — 4%, to the shop superintendents and others — 2%; 5) for each percentage of overfulfillment of the plan of labor productivity: to the director — 6%, to the shop superintendents and others — 3% of their basic salary.

With such a system of premiums the existing amount of premiums is retained, but the overfulfillment of the output plans and the fulfillment and overfulfillment of the plans of lowering the cost of production are stressed, though the fulfillment indices of the plan of labor productivity is considered the most important.

In our opinion, such a reconstruction of the system of premiums corresponds to the urgent requirements of the development of industrial production.

The system of premiums should also be extended to the workers of the economic councils. The apparatus of the economic council differs from that of a ministry because it is in close daily contact with the work of enterprises, revealing the defects in their work together with the workers of the enterprises, introducing new technique, perfecting technological processes, etc. Awarding premiums to workers of the economic councils would strengthen their contacts with the enterprises. Creating personal interest in the increase of labor productivity would promote further development of creative initiative of the engineers and technicians, raising the technical level of production and the still more successful fulfillment of state plans.

The growth of labor productivity in every enterprise is secured as the result of applying a complex of diverse measures of an organizational-technical and economic character. The decisive influence in this is raising the technical level of production, introducing new technique and progressive technological processes.

In 1949 the rules were put in operation for awarding premiums to those working in various enterprises, bureaus of constructors and scientific-research institutes occupied with designing and making models of new, modernized machines, equipments and other articles. But these rules were not compulsory. The engineers and technicians were awarded premiums at the discretion of the managers of enterprises or for the fulfillment and overfulfillment of the plan of production, or for producing new equipment. In practice it so happened that almost all enterprises awarded premiums for the fulfillment and overfulfillment of the plan of production.

The new rules have great importance in the respect that the premium for the introduction of new technique is awarded independently of other premiums. The funds for premiums are not appropriated from the wage fund, but are provided in the cost of production plans. The premiums are paid not at the completion of the entire work, but by stages (working out of the project, preparing working drawings, working out the technological details, fitting out and producing an experimental model and testing it). All this corresponds to the needs of further technical progress in machine-building.

The principle of personal material interest in working out and introducing the organizational-technical measures should be utilized more extensively in order to secure the growth of labor productivity and for lowering the cost of production.

The rules on awarding premiums to workers for working out and introducing new technique provide for premiums only for large-scale measures which have a considerable economic effect, the realization of which sometimes requires the cooperation of several adjacent enterprises and scientific-research institutes.

But for technical progress the realization of such large-scale measures, important in their economic significance, is not enough. At each enterprise every year a plan is prepared and approved on organizational-technical measures which is a part of the technical-industrial-financial plan of the enterprise. Such a plan includes different measures directed toward raising the technical level of the given enterprise, improving the quality of production, etc. The plans for organizational-technical measures are an embodiment of the collective creative thinking of the engineers, technicians and the foremost workers. But their realization is not encouraged. As a result, many measures are transferred from one plan to another and are not realized for years. Some large-scale reserves of production are put in operation with considerable delay. This is connected with the practice of realizing the measures of such plans as an "additional load" with some "pressure" from the managers of the enterprise. For the fulfillment of the organizational-technical measures outlined by the plan their real executors — the workers, engineers and technicians — receive no compensation in the form of premiums. Neither the constructors, the technologists, the shop superintendents, the foremen nor others are personally interested in the more rapid working out and introduction of the planned production measures. This is one of the basic causes of the unsatisfactory realization of the plan of organizational-technical measures at enterprises. Thus some of the most needed and economically useful measures are not realized for years.

For the working out and introduction of organizational-technical measures at the enterprises the direct executors should be materially compensated and encouraged. Let us consider a specific case. At the electrical equipment plant for tractors possibilities exist for extensive utilization of pneumatic removal of details from the press. It was calculated that on each such operation this removal of details raises labor productivity 20-80%. Besides, the pneumatic removal of details secures safe conditions of work. From 40 to 50 operations on details of mass-production could be transferred to pneumatic removal, and this would result in some hundreds of thousands of rubles economy. In spite of this, for several years the utilization of this very important plan, repeatedly included in the proposed organizational-technical measures, remains unrealized.

The same happens to the proposals of the rationalizers and inventors. In most cases the bureaucratic delays in the realization of the rationalizers' proposals begin after they are accepted, when it is necessary to start the technical working out, producing them in metal or even when it is a matter of putting them into operation. For instance, the constructor Comrade Smirnov suggested in 1955 organizing automatic drawing of the reflector of the tractor's head-light. His proposal was accepted and technically worked out, but the production of this rather simple device was delayed up to 1957. Finally, the device was manufactured. But its testing still is going on, already for almost half a year. The realization of this project not only doubles the labor productivity on this operation, but at the same time opens important perspectives for transferring to automatic production other details using the same principle. Here is another example. The constructor Comrade Pyrov has designed a semi-automatic capstan-punch for manufacturing the aluminum body of the "velo-dinamo." According to the suggestion of Comrade Pyrov seven operations can be combined in one. This proposal was accepted, but the making of the fitting has been going on for eight months, while this work could be accomplished in one month. One could continue this enumeration of similar facts. All of them are the result of the lack of personal material interest of the direct executors.

It seems to us that certain remuneration in the form of premiums for the direct participants in the working out and introduction of these production proposals should be established in accordance with the above outlined principles of the rules of awarding premiums for the introduction of new technique. Such a method of awarding premiums would play an important role in raising the creative activity of the engineers, technicians and industrial innovator workers in intensifying the struggle for the further raising of the technical level of production and the growth of labor productivity. Such a new scheme will strengthen the meaning of the plans for organizational-technical measures and will promote the discovering of new unused reserves of production.

At present the plans for organizational-technical measures are approved by the economic councils and their realization is controlled by the same. It would be proper to establish a procedure under which the economic council would award premiums to the engineers, technicians and workers for their participation in the fulfillment of the specific measures outlined in the economic-technical plan. This should be done on the recommendation of the director of the enterprise.

If the premiums for the working out and introduction of important measures of new technique are awarded from the sums provided in the technical-production-financial plans of the enterprise and from the centralized funds, then premiums for the working out and introduction of organizational-technical measures and of the proposals of rationalization, in our opinion, should be paid out of the savings achieved by the enterprise through the utilization of such proposals.

The acting rules (operating in the machine building industry) on premiums for fulfilling and overfulfilling the plan of output authorize the director of the enterprise to deprive the premium, partly or completely, from given workers for defects in their work. But these rules do not authorize the director to increase the amount of the premium for especially excellent workers. Therefore it does not completely eliminate "compensation-leveling." In our opinion, this arrangement too should be changed. It is necessary to allow the director to increase the amount of the premium to certain workers at the expense of lowering it for others.

The existing system of encouragement should be improved with respect to the actual participation of certain categories of engineers, technicians and employees in the fulfillment and overfulfillment of the plans. According to the existing rules, the chief bookkeeper of the plant gets a premium for the fulfillment and overfulfillment of the plan of production the same as the superintendent of production, the shop superintendents, the chief technologists, the chief mechanic, etc. However, the degree of participation of the chief bookkeeper (or his assistant) and of the superintendent of production and other enumerated workers in the fulfillment of the plan of production are not equal.

The premium should be withdrawn or reduced when workers are responsible for the non-fulfillment of certain indices of the plan. For instance, the following situation may arise: the enterprise did not fulfill the plan in relation to the nomenclature as the result of a shortage of metal for one of the manufactured articles. The workers of the supply apparatus are responsible for that because they did not secure the timely delivery of metal. The director of the enterprise lowers the premium due to all workers of the plant management apparatus. But what did the chief mechanic or the chief technologist have to do with it? Or on the other hand, the enterprise did not fulfill the task of labor productivity. The premium is lowered for all workers of the plant management apparatus. But are the workers of the supply apparatus responsible for the indices of labor productivity?

In the existing rules on premiums the amount of premium is differentiated only according to the rank of the official standing of the workers. In awarding premiums the direct responsibility of the given worker in the fulfillment of one or another index of the plan should be considered. Such a differentiation in awarding premiums would promote the raising of the responsibility of every engineer, technician and employee for the work assigned to him.

The following question also remains unsettled:

In the rules on awarding premiums for inventions, technical improvements and rationalizing proposals paragraph "19" appears, well-known to all the engineers and technicians. In this paragraph it is stated: "The remuneration for technical improvements or rationalization proposals directly related to the sector of work of the author is paid: a) to engineers, technicians, foremen, workers, constructors, technologists, etc. for technical improvements or rationalization proposals which have an original character and elements of technical creativeness; b) to the directors, chief engineers, chief technologists, chief metallurgists, chief constructors, chief mechanics, shop superintendents and superintendent of sections for original technical improvements."

In practice the application of this paragraph very often impedes the development of rationalizers and inventors. If one would strictly rely on this paragraph, then a worker can receive remuneration only for a rationalizing proposal having "original character and elements of technical creativeness" — very vague conceptions. Such requirements, if they were completely applied, would not promote the inventiveness of workers.

It would be more useful if the remuneration were paid for every rationalizing proposal or invention not for its "originality," but for its economic effectivenss. This undoubtedly would help the further growth of the mass movement of rationalizers and inventors.

I. Dmitrashko:

Labor Payment Experience in the Bolshevik Collective Farm

The Bolshevik collective farm in the Shostkinsk region of the Sumsk district is a large multi-branch enterprise. It has 5,667 hectares of land alloted to it, of which 3,498 hectares is arable land, 1,009 hectares meadows and pastures, 105 hectares orchards and gardens and 440 hectares woods. In 1957 this collective farm had 1,000 head of cattle (including 350 cows), 1,800 pigs, 665 sheep, 1,200 head of poultry and an apiary with 350 swarms of bees, etc. In this social enterprise more than 800 able-bodied farmer are occupied. The basic direction of the economy is grain, hemp and animal breeding.

Among the grain cultures winter-crops and corn predominate; among the technical, hemp and sugar beet. Along wit tillage and animal breeding, truck-farming on open or covered soil, horticulture, apiculture, sericulture, production of building-materials, etc. are developing in this collective farm.

The Bolshevik collective farm is electrified (41 electromotors with a total power of 286 kilowatts), the processes in animal breeding requiring the expenditure of a great deal of labor are mechanized — on the farms there are automatic watering troughs, electric milking, electric sheering of sheep, an intra-farm transportation system, and a central feeding unit from which the prepared fodder or hogwash is delivered by cable to all the cattle-yards and pigsties.

Up to 1951 the Bolshevik collective farm was one of the most backward and economically weak collective farms of the Shostkinsk region. The crop capacity, the productivity of animal breeding and the money income was low. The average grain yield was no more than three to five centner per hectare; potatoes 50-80 centners; hemp fiber three to four centners. The milk yield was only 900 liters per cow; only 40-42 centners of milk and eight centners of meat were obtained per 100 hectares of arable land. The money income of the collective farm amounted to 300-400 thousand rubles or 120-150 rubles per hectare of arable land. The low remuneration for labor affected the participation of the farmers in the social work. About 20% of the able-bodied farmers did not reach the established annual minimum of work-days. The work norms as a rule were lowered, but even so they were not fulfilled. The farmers spen a considerable part of the time selling the produce from their auxiliary economy. The then existing practice of distributing income according to the number of working days only at the end of the year lowered the material personal interest of the farmers in social labor. Many farmers sought additional sources of revenue elsewhere, neglecting the principal work at the farm even during the most busy time.

Since 1951 this collective farm started to advance money monthly. In the beginning it paid two rubles per working day, later on four to six rubles. Thanks to this monthly advance the labor activity of the farmers increased and thi made it possible to carry on all the agricultural work in th best time from an agronomic standpoint. The new method of paying for labor increased the material, personal interest of the farmers in the growth of production, stimulating their desire to improve their qualifications and to work in the social economy during the entire year. In 1956 the money income of the farm amounted to six million rubles (compared with 380,000 in 1950). In the current year, eigh rubles in cash, 1.2 kilograms of grain, two kilograms of po tatoes and vegetables and two kilograms of coarse fodder were distributed per working day. The kolkhoz accumulate by 1957 a circulating fund amounting to 922,900 rubles.

Relying on the six-year experience of monthly advances, the Bolshevik kolkhoz decided to start in 1957 a new, guaranteed, monthly remuneration for labor in order to further increase the material personal interest of the farmers in the development of the social economy. In order to determine the amount of payments to the farmers it was necessary to plan production in a new way, to establish new norms of labor and to evaluate the work in a new manner. The kolkhoz prepared a production-financial plan like that of the state farms, providing in it the cost level of all types of production and the net income of the "artel" [association for common work]. The norms of labor, pricing and work technology were stipulated. All work is evaluated in money form: for instance, for fulfilling a day's norm for tillage by horse-driven plow (0.5 hectare) — 13 rubles; for sifting seeds on a screening-machine (norm 20 centners) — 40 rubles; for milking 100 liters during the winter period — 28 rubles, during the summer period — 15 rubles; for artificial pollination of corn — (norm three hectares) — 12 rubles; for sowing grain by horse-driven seeding-machine (norm 4.5 hectares) — 30 rubles, etc. For every member of the "artel" there is a monthly register for accounting the remuneration, in which the following are indicated: the brigade and team to which the member belongs; the date and type of work performed; the unit of measurement, the volume of work and the amount of pay due for it.

The kolkhoz organized the sale to its members of grain, potatoes, vegetables and fodder at prices established by the state for its purchases. For this purpose 20-25% of the natural produce remaining for consumption (75% of the natural produce is used for the expansion of production, for seeds, for the insurance and fodder funds) is divided by the amount of the money payment fund to find out how much of this produce corresponds to each ruble earned. Those who have earned more have the right to receive more produce from the kolkhoz, but for cash, not free. The advantage of such a system, compared with the system of distribution per working days, is that every farmer buys just what he needs and as much as he needs. Thereby the farmers are relieved of the necessity of selling on the market produce received by them under the system of distribution per working days. This too increases their labor activity in the social economy of the kolkhoz.

The transition to remuneration in money resulted in a new increase of labor enthusiasm and increased the farmers' material personal interest in the development of the social enterprise. Every farmer strives to come to work. The earnings in money now depend only on him. The average monthly pay of a milkmaid is 1,100-1,200 rubles; of a pig-tender 1,000-1,100 rubles. The average earning of a farmer on regular work in the field is 500-700 rubles. Such a difference is wholly justified: the qualification of the farmers occupied in animal-breeding is considerably higher and their work usually is more complicated than the work of the common farmer working in the field. For the managerial personnel of the kolkhoz the size of monthly remuneration is established on the basis of the work results (for the chairman of the kolkhoz — 1,200 rubles; his deputy and the chief bookkeeper — 1,080; for the agronomist — 960 rubles, etc.). Every one of them receives at once 80% of the monthly rate, and the balance is paid on condition of fulfillment of the plan of production.

In 1957 all the production indices for the Bolshevik kolkhoz were considerably improved compared with 1956, as is seen from the following data.

	1956	1957	1957 as % 1956
grain crop per ha. (in centners)	8.7	15	172.4
sugar beet crop per ha. (in cent.)	228.0	300	131.6
milk per 100 ha. arable land (Cent.)	146.5	200	137.0
meat per 100 ha. arable land (cent.)	41.5	60	146.3
milk per cow (kg.)	2206	2600	118.1
money income per ha. (rubles)	1800	3128	173.8
total income in money (000 rubles)	6000	9600	160.0

The fund for work payments, pensions, pay for vacations and disability payments amounted in 1957 to 4.1 million rubles. All the expenses for the year according to the estimate amounted to 7.4 million rubles; consequently, the excess of income over expenses amounts to 2.2 million rubles. The 1958 industrial-financial plan provided one million rubles for the work payment fund and 233,000 rubles for pension and temporary disability payments.

With the transition to the money form of payment for work according to norms and evaluations in money, the cost calculations of kolkhoz production and the determination of labor productivity were considerably simplified. Along with this all the conditions for introducing self-financing in the enterprise were created. The experience in paying for labor in the Bolshevik kolkhoz of the Shostkinsk region, Sumsk district, deserves attention.

N. Kasyanev:

How to Lower the Cost of Milk on the State Farms

The state farms play an important role in the production of animal products. Year by year the specific weight and significance of the state farms in producing these products is growing. But their cost, and especially that of milk, continues to be very high. In 1956 the state farms did not succeed in lowering, but even tolerated an increase in the cost of milk. The Central Committee of the CPSU and the Council of Ministers of the USSR in their appeal to the state farms indicated that "the causes of high milk and meat cost in the state farms should be seriously analyzed and decisive measures for a sharp cost reduction of these products should be taken." In this connection an economic analysis of the factors influencing the change and reduction in the cost of production of milk is very important.

As it is known, the cost of milk is made of wages of workers serving the herd of milk cows, the value of fodder and other expenditures, as well as the expenses of the state farm. These expenditures in different state farms differ sharply. As an example we give below the data on expenditures per centner of milk and its cost of production in 1956 in some state dairy farms of the Vladimirskaya region

STATE FARMS:	EXPENSES PER CENTNER OF MILK					Cost of production
	wages	fodder	other direct expenditures	expenses on production in general	expenses on the enterprise	
Proletariat						
in rubles and kopeks	26-62	52-73	4-19	10-98	4-94	98-46
in %	100.0	100.0	100.0	100.0	100.0	100.0
Spartacus						
in rubles and kopeks	31.02	57-58	4-22	14-23	7-18	114-33
in %	121.0	109.2	100.7	129.6	145.3	116.0
Gigantic						
in rubles and kopeks	34-29	92-22	6-82	17-35	11-07	161-75
in %	133.8	174.9	162.5	157.9	228.1	164.3

which are in the same natural conditions.

As it is seen from the above data, in the state farm Proletariat the cost of production of milk was 64.3% lower than in the state farm Gigantic. In the first state farm compared with the third there was 33% less expenditures per centner of milk on wages; 74.9% on fodder; 62.5% on other direct expenditures; 57.9% on the general expenditures on production and half as much on expenses of the enterprise as a whole. The difference in the expenditures and the cost of milk is also considerable between the Proletariat and Spartacus state farms.

Let us examine every element of the cost of production of milk and the reasons why the Proletariat state farm achieved a considerable reduction of the expenditures for producing milk.

The wages of workers directly occupied in servicing the herd of milk cows constitute 25 to 30% of the cost of production of milk on the state farms. Economy on this item, achieved at the state farm Proletariat, was the result mainly of the increase of productivity of the animals because most of the work on the care and maintenance (putting in order the premises, cleaning the animals, etc.) remains the same if the milk yield per cow is growing. The milk yield per cow at the Proletariat state farm was 3,935 kilograms, while it was 3,096 kgm. at the Spartacus state farm and 2,643 at the Gigantic state farm. Mechanization played a big role in economizing on wages per centner of milk at the Proletariat state farm. The level of mechanization of the processes requiring the expenditure of much labor on the cattle section in that state farm was 85%, while at the Spartacus state farm it was 72% and at the Gigantic it was 33%. The expenditures of working days on production of one centner of milk was respectively — 1.10 man-days, 1.30 man-days and 1.74 man-days. The saving on wages, for instance, because of mechanization of the milking process per centner of milk was one ruble 26 kopeks at the Proletariat state farm; one ruble 18 kopeks at the Spartacus state farm; at the Gigantic state farm milking still is not mechanized.

The higher level of mechanization of the processes requiring the expenditure of much labor was achieved by comparatively better utilization of the machine equipment of the farms. For instance, at the Proletariat state farm 2,704 centners of milk was obtained from every mechanical milking unit and at the Spartacus state farm — only 1,958 was obtained. As a result the percentage of amortization of these units per centner of milk was 59 kopeks in the first state farm and 82 kopeks in the second; and the expenditure on electric power used for these units was respectively 27 and 39 kopeks. It must be noted that some managers of the state farms using complex mechanization on animal-breeding sections pay attention only to the savings of living labor. The expenditures on the labor embodied in commodities per unit of production (amortization, electric power, etc.) are not calculated, not controlled, and no measures for lowering them are taken. All this leads to a considerable lowering of the effectiveness of mechanization. More than that, there are cases among the state farms in which the irrational utilization of mechanical equipment results in labor saving, expressed in money, less than the growth of expenditures on the labor embodied in commodities and of the corresponding expenses in money.

The greatest part of the cost of milk belongs to fodder — more than 50% of the total. At the Proletariat state farm the expenditures on fodder per centner of milk, expressed in money, are less than in other state farms, and in particular, almost half those at the Gigantic state farm. This is achieved basically through the steady reduction of the cost of production of fodder crops. Thus, in the Proletariat state farm the cost of production of one centner of silage was eight rubles 59 kopeks, roots — eight rubles 19 kopeks; annual grass for hay — nine rubles 42 kopeks; while in the Gigantic state farm correspondingly — 22 rubles 22 kopeks, 42 rubles 32 kopeks and 13 rubles 88 kopeks.

At the Proletariat state farm great attention is paid to the economically substantiated selection of fodder crops, proper alternation and distribution of them on the fields for crop rotation and improvement of the area structure under crops in order to increase production and reduce costs. In selecting the crops their yields and steadiness, the amount of fodder units obtained from a hectare, their nutritional value (amount of albumen, minerals and vitamins) and also the cost of a unit of the fodder are considered.

The many years' experience of the state farms and the collective farms of the Vladimirskaya region, as well as the data of the Vladimirskaya experimental station showed that the most rich in yield, stable and valuable fodder crops under this region's conditions, and in many other regions of the Central non-black-earth zone, are the following: clover, vetch (vikia), pelyushka and lupin (leguminous plants) and potatoes, which is second after corn in its yield in nutrition units per hectare. They pay a great deal of attention to these crops in the recent years at the Proletariat state farm. Thus, the area under vetch (vikia) and pelyushka occupy 77% of the total at the Proletariat state farm — 41% at Spartacus and 42% at Gigantic.

In order to reveal reserves for increasing the production of fodder in accordance with the growth of the requirements of animal-breeding at the Proletariat state farm crop-rotation and the structure of the areas under different crops were revised in recent years. The fallow area was decreased to the minimum, the area under intertilled crops and silage crops was enlarged at the expense of cutting down to a half (compared with 1954) the area under annual grass and groat crops with low yield. The area under potatoes was enlarged and corn was introduced as the basic crop for silage. Considering the importance of lowering the cost of fodder per unit of production, the state farm extended the sowing of crops which contain albumen — alfalfa, vikia, sweet lupin and clover. Special consideration is given to the tillage of the soil, the timing of the sowing of the crops giving the highest yield, good care of the crops and extensive use of fertilizers.

Along with increasing the production of fodders and lowering the cost of production at the Proletariat state farm, measures are being taken for increasing the productivity of meadows and pastures. A radical improvement of the meadows was accomplished with the result that 18 centners of hay is gathered instead of eight or nine in the past. A correct rotation of crops was introduced and mastered. Enclosed pasturage with the "electric shepherd" was organized. This permits more rational utilization of the pastures and makes it possible to obtain more product per unit of area under fodder. The experience of the Proletariat state farm in mastering the so-called "worthless" land also deserves attention. During recent years 94 hectares of such lands were rooted out, more than 400 hectares were plowed up and 350 hectares were sown with perennial grass mixtures. As the result of these measures the yield of hay at the farm more than doubled. At other dairy farms of the state farms in the Vladimirskaya region the areas under natural meadows are utilized in a primitive manner and therefore give very low yield of fodder at a high cost. It is not seldom that at many state farms the hay gathered from the natural meadows costs more than the hay gathered from the fields sown with perennial and yearly grass. Thus in 1956 at the Bolshevik state farm the cost of hay from the natural meadows was one ruble 28 kopeks per unit and the hay from perennial grass was — 73 kopeks; at the Komsomol state farm correspondingly — 44 and 36 kopeks; at the Metallist state farm — 76 and 54 kopeks, etc. This testifies to the fact that it is necessary to increase sharply the yield of natural meadows.

A very important role in lowering the cost of the fodders along with raising the yield of fodders is played by economy in their cultivation. The total expenditures per hectare, for instance of potatoes, at the Proletariat state farm, where all the requirements of a high level of agricultural culture are fulfilled, were 10.7% lower than at the Spartacus state farm and 26.8% lower than at the Gigantic state farm. This was achieved through better utilization of the agricultural machines, the most correct organization of labor, the economic use of fuel and lubricants, lowering expenses on machine repairs, lowering the cost of seeds and fertilizers, cutting down overhead expenses, etc.

The reduction of expenditures for fodder in monetary units per centner of milk at the Proletariat state farm reflected the right expenditure of fodder and a higher return for fodder in terms of animals. In the annual ration of the cows at this state farm the more expensive concentrated fodder amounted to 24.6% only; the coarse fodder — 26.8% and the succulent fodder — 48.6%. Such a type of feeding promotes a higher milk yield, secures normal physiological conditions for the animals and a healthy posterity. The ration of the cows at the Proletariat state farm is close to the typical ration which was worked out and recommended by the All-Union Scientific-Research Institute on feeding animals in agriculture. In this typical ration are included 29% coarse fodder (of the total nourishment), 30% succulent type and 21% concentrates. During the inspection at the state farm "Novo-Medvensky" in Tula region it was found that this type of a ration secured an average yield of milk per cow of 16 kilograms per day and the expenditure of concentrate per kilogram of milk was 180 grams, while with the ration used in the past with 25% coarse, 35% succulent and 40% concentrated fodder 15.7 kilograms of milk per cow was received, though the expenditure of concentrate per kilogram of milk amounted to 300 grams. At a number of the dairy-farms of the Vladimirskaya region the fodders are used wrongly: excessive expenditure on concentrates is tolerated, while the amount of succulent fodder used is inadequate. A particularly high over-expenditure of concentrates is observed at the Spartacus state farm. In its rations there are: 31% of the concentrates; 33.8% of the coarse fodder and 35.2% of the succulent type. At a number of state farms the zootechnicians prescribe rations purely formally, without considering the yield, the weight and age of the cow, time of lactation, the quality of the fodders, etc. The brigade-leaders and the milk-maids are not always watching how the animal eats, are not reporting on time to the zootechnicians and veterinarians about the worsening of the appetite of this or that animal. Of considerable importance is the proper regime and feeding of the animals. At the cattle-yards of the Proletariat state farm the established order of the day is strictly observed, according to which the feeding, milking, airing, cleaning of the animals, removal of the manure and the change of the litter are carried out at an indicated time. When feeding the various types of fodder to the cows, they receive first the concentrates, then the succulent fodders and finally the hay. Much attention is paid to ensuring in the fodder a sufficient amount of necessary mineral salts and vitamins. As a result of all these measures, the returns in terms of the animals for the fodder they receive at the state farm Proletariat was higher than in many other state farms of the Vladimirskaya region. Each cow at this state farm, where an average of 3,935 kilograms of milk per cow is received and an expenditure of 4,643 units of fodder per cow is made, produces 100 kilograms of milk per 118 units. At the Bolshevik state farm of the same region with an average yearly yield of 2,169 kilograms of milk and expenditure of 2,761 units of fodder, 100 kilograms of milk for 127.3 units of fodder are produced. The higher return for the fodder in terms of animals is achieved by the steady improvement of the herd on the basis of a solid base of fodders.

Essential measures for strengthening the fodder base and lowering its cost at the state farms are the proper stacking and preservation of the fodder; opening the stacks of hay and straw and bunkers of potatoes and roots; proper silage; lowering the loss of fodder at the time of harvesting, transportation and preparation for feeding. As it is known, these losses are accounted for in the cost of the products of animal breeding and consequently raise their price.

All the other direct expenditures constitute 4 to 4.3% of the cost of production of milk at the state farms. These expenditures at the Proletariat state farm are 62.5% lower than at the Gigantic. The relative economy on other direct expenditures was obtained at this state farm by higher milk yield per cow and more rational utilization of material valuables.

The general expenditures on production in animal breeding constitute about 10-13% of the total cost. They are connected with the production not only of milk, but also other products of animal breeding. Therefore the part which is included in the cost of milk production is determined by the percentage calculated by dividing the sum of all the expenses on production by wages in the direct expenditures. At the Proletariat state farm the total expenditures on production are 10 rubles 98 kopeks per centner of milk, while at the Spartacus state farm they are 14.83 and at the Gigantic — 17 rubles and 35 kopeks. The relative economy in the total expenditures for general production per centner of milk at Proletariat was achieved thanks to the higher productivity of the cows and a greater output of production of the animal breeding industry.

Among the production expenditures the largest items are the wages of the personnel serving the animal breeding branch, which account for more than 30%, and the amortization of the basic production funds, which are about 20% of the total of these expenditures of the state farm. In order to economize on this item perfection of the management structure and observing discipline are necessary. The size of amortization of the basic funds depends on their value, the length of their service, and the effectiveness of their utilization. The most important method of economizing on the expenditure for amortization in dairy farming is in lowering the cost of buildings and the proper use of them, which to a considerable extent determines the size of the expenses on repairs and the length of service of the means of production. The more complete the utilization of the buildings, the lower is the share of amortization per unit of production, and accordingly the quicker the return to the state farm of the funds invested in the construction of these buildings.

In many state farms an over-expenditure for the so-called stock of little value is tolerated. For instance, at the Gigantic state farm the over-expenditure on this item amounted to 4,500 rubles.

The volume of production at the state farms affects considerably the level of expenditures for general production. Thus at the Zimenki state farm, of the Vladimirskaya region, with a yield of 2,578 kilograms of milk per cow 12 rubles 46 kopeks per one centner of milk was spent, while at the Frunze state farm of the same region, with a yield of 3,269 kilograms — 15 rubles 16 kopeks was spent. This is because there are 407 cows at the first and 298 at the second of these two farms.

The expenses for the entire state farm compose 6 to 7% of the cost of milk. They do not differ from the total expenses of production in the method of accounting for them. At the Proletariat state farm these expenses per centner of milk were 45.3% lower than at the Spartacus state farm and more than two times lower than at the Gigantic state farm. Such sharp fluctuations of these expenditures are partly explained by the difference in the size of the state farms, but mainly by the different level of their non-reproduction expenditures. At the Proletariat state farm such expenditures represented 1.7% of the total sum of expenditures for the entire state farm, while at Spartacus they amounted to 5.8% and at Gigantic even — 17.7%.

Economy of expenditures for the entire state farm per unit of production could be achieved by the same method as that for the expenses of production. In particular combining professions deserves attention and more extensive application. For instance, at the Proletariat state farm one brigade leader on tillage and one brigade leader on animal-breeding used to work at two separate farms located at a distance of three to four kilometers from the farmstead, but now only one brigade leader is in charge of the work on both of these farms.

Barrenness of the cows negatively affects all the element of the cost of production of milk. The more barrenness there is in the herd, the lower the production of milk, and the higher the cost of production. For instance, at the Proletariat state farm there were nine dry cows and the cost of production of one centner of milk increased one ruble 50 kopeks; at the state farm Spartacus where 34 cows were dry, the cost of production increased seven rubles 33 kopek In their struggle against dryness and to increase the production of milk the animal breeders in many state farms shorten the period without milking before calving. It is proved that a period without milking of 45-60 days is quite sufficient for fattening the animals up to the normal weight, for restoration and preparation of the mammary (lactic) gland and to give birth to a healthy calf. Yet many state farms of the Vladimirskaya region prefer to have a longer pre-natal period.

Sharp fluctuations in the expenditures for wages, fodder, other direct expenditures as well as in the total expenditure for production and for expenses of the entire state farm testify that there are great possibilities for lowering the cost of production of milk at the state farms of the Vladimirskaya region and all the regions of the non-black-earth zone. Utilization of these possibilities would allow us to fulfill more rapidly and more successfully the task posed by the Communist Party of the Soviet Union — to surpass the United States in per capita production of milk, meat and butter per capita.

E. Platnev:

French Socialists on the Soviet Economy

The remarkable successes and majestic perspectives of communist construction in the USSR call forth growing interest and sympathy among the broad masses of the working class and toilers of all countries. They manifest a vivid interest in the life of the Soviet people and the achieve ments of socialist economics. The leading circles of the French Socialist Party cannot fail to consider this.

In recent years the USSR was visited by a French govern mental delegation headed by the former Premier, socialist Guy Mollet, and a delegation of the French Socialist Party (a section of the Worker's International) including senior members of that Party Vincent Auriol (former President of the French Republic), Jules Moch (representative of France in the UN Commission on Disarmament) and others In the right-wing press of the Socialist Party life in the USSR and in particular its economic problems are discusse quite frequently. This testifies to a certain change in the opinions of members of the French Socialist Party which became especially noticeable after the 20th Congress of the Communist Party of the USSR.

And so how does the press of the French Socialist Party reflect these changes when discussing the economic probler of the USSR?

First of all what is striking is the considerable diversity in the evaluation of the economic successes of the USSR made by leading members of the French Socialist Party. The more farsighted among them try to evaluate the 40 years of outstanding results in socialist construction in the USSR more objectively. But many among the leaders of the Socialist Party and some publicists not only continue to disseminate "cock and bull stories" about the Soviet Union but even intensified their "activity" in that direction.

The undeniable successes of the USSR have provoked some kind of polemic on the pages of the socialist press of France, which is developing in different directions.

The reactionary leaders and theoreticians of the Socialist Party attempt to distort the facts and first of all the data on the tempo of the growth of the USSR economy. What methods of falsification are being used by this kind of investigator can be judged, for example, by the performance of Professor Pierre Rember, who wrote in 1956-1957 a series of articles about the USSR for "La Revue Socialiste." In one of them ("The Changes in the Structure of Russia") Rember applies the following method. In the beginning he admits that production in the USSR increased tens of times compared with 1913. But then he makes haste to minimize the achievements of the national economy of the USSR for 40 years, declaring that such a high tempo of growth has no real significance because of the low "point of departure" (in 1913) and that such a rapid development was characteristic for the USSR in the past, but now, supposedly, a stage of "slowing down of the tempo" is beginning.* An old song!

The enemies of the communist movement, trying from the first days of socialist construction in the USSR to minimize the significance of the successes of the Soviet people, cannot understand that they underline against their own will the grandiosity of the socialist reorganization achieved in our country against the background of the low level of economy of the pre-revolutionary Russia. It is known to everybody that the Soviet regime received an exceedingly difficult heritage from tsarism. Russia lagged behind the economically developed capitalist countries. Age-old economic and cultural backwardness was aggravated by the unprecedented devastation and famine resulting from the first world war and foreign intervention. The young Soviet state had to build socialism alone to overcome the resistance of the internal counter-revoluion and the armed intervention of the imperialist states. But in spite of all the severe trials, our country economically overtook many industrially developed capitalist countries during the years of the Soviet regime. Compared with the pre-revolutionary period, the volume of industrial production in the USSR by 1957 increased 33 times and production of the means of production in the period 1930-1955 reached 12.3% in the USSR, and if the war years are excluded — 18%. In comparison the growth of production in the US was 3.3 and 2.8%; in France 0.9 and 2.5%. These facts testify convincingly that during the pre-war as well as the post-war periods socialist industry developed at tempos which were not and are not known in capitalist countries.

Naturally these incontestable facts put the reactionary socialist publicists in a difficult position. In the spring of 1957 one "socialist critic," Darius Le Cour, declared on the pages of "Le Populaire," that the Soviet Union is "a poorly developed country" and compared it with the Belgian Congo.† Now commenting on the report of N. A. Khrushchev at the Jubilee session of the USSR Supreme Soviet, he is compelled to make, in essence, just the opposite admission. Now Darius Le Cour compares the USSR not with the Belgian Congo, but with the US. He even assumes that the USSR may surpass the US in certain fields. True, having performed such a sharp reversal, Darius Le Cour then tries to prove that the growth of production in the USSR up to or even higher than that in the US supposedly can occur only on the basis of an increase in the absolute number of and the mass of technical equipment. In other words the "privilege" of lowering the socially necessary labor time for producing a unit of product he extends to the US only. To the Soviet Union this critic "refuses" in advance any growth of labor productivity, leaving it unchanged in order to prove then the inevitability of the USSR "lagging behind" the US in the future! Darius Le Cour writes: "It may happen that, having mobilized more labor power and utilizing more equipment, the Soviet Union will achieve an increase of production in certain fields. It may even happen that it will succeed in obtaining a larger output in some branches of industry than the US, but the principal requirement for the victory of the new social order is labor productivity." In order to make his reasoning more convincing Darius Le Cour even refers to Lenin's declaration concerning the decisive role of labor productivity. But he fails to cover the absolute depravity of his own arguments.

The entire experience in the development of socialist industry clearly testifies to the fact that one of the powerful sources of the growth of industrial production is exactly the steady increase of labor productivity. And the tempo of the growth of labor productivity in the Soviet Union is considerably higher than in the US. In 1957 labor productivity in the USSR increased 9.5 times compared with 1913 while in the US it increased only 2.3 times. Besides, facts show that the average increase in the tempo of the yearly growth of labor productivity in the USSR is increasing. From 1928 to 1955 labor productivity was increasing yearly an average of 7.35%; from 1950 to 1955 7.6%; and from 1955 to 1960 it will grow by 8.5%. And this is not by chance. It is known that "in our country labor productivity is growing on the basis of the large-scale introduction of the achievements of science and technology and the improvement of working conditions." These are the words of N. S. Khrushchev at the Jubilee session of the USSR Supreme Soviet.

In 1957 the magazine "La Revue Socialiste" published a long article by one of the theoreticians of the French Socialist Party, Oreste Rosenfeld. The very expression "building socialism" he declared illegal and even "barbarian." Rosenfeld is against those who "accept the growing number of factory stacks as the realization of socialism."*

When the direct supporters of monopoly capital become convinced (with anger and anxiety) that the Soviet people have created a mighty socialist industry and thereby have secured the economic independence of their country, and when they become convinced that the hopes of the imperialists for the restoration of the capitalist system do not justify themselves, one can understand them. But when similar hostile opinions vis-a-vis the creative work of the Soviet toilers, translating into reality the age-old aspirations of mankind, are expressed by a man who bows before the banner of socialism, it is quite obvious that such a "socialist" opinion does not differ in any way from the opinions of the imperialist bourgeoisie.

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* "La Revue Socialiste," No. 104, 1957, pp. 126-132.

† "Le Populaire," 10, V. 1957.

* "La Revue Socialiste," No. 105, 1957, p. 253.

Rosenfeld apparently is not disturbed by that. From his writings one can see that his main aim is to distort, to caricature the Soviet economic system. He directs his main "thrust" at socialist planning in the USSR. And this is not by chance: for planning is one of the vital foundations of the socialist state. "The only construction which deserves the name of socialist," said V. I. Lenin, is that which will be realized according to a large-scale general plan, striving for the even utilization of economic values."[†] The experience of victorious socialist construction in the Soviet Union shows that the planned development of the national economy, directed by the Communist Party, is the guarantee of continuous economic ascent and one of the basic advantages of the socialist system over the capitalist system.

Rosenfeld understands that economic planning, realized for the first time in the Soviet Union, has become world famous, and he tries by a rather simple method to discredit the basic principles and the achievements of the Soviet method of economic planning: he declares that planning is a principle already wide-spread in capitalist states. "We have to admit," he writes, "that planning is realized in the capitalist countries."[‡] Rosenfeld proceeds ever further, declaring that planning of the national economy in the USSR essentially is only a "copy of planning" supposedly organized in a number of capitalist countries beginning 1914-1918. As examples of "planning" in the capitalist countries he cites the "New Deal" of Roosevelt in the US and the activity of the bourgeois governments during the Second World War, etc. Rosenfeld deliberately tears planning away from the objective conditions of its realization, from the existence of socialist social ownership of the means of production, from the operation of the objective economic laws of socialism. His task is to confuse the toiling masses of France.

It is well known that the great ideas of scientific socialism concerning the conscious, planned management of social production, sucessfully realized in the USSR, is extremely popular among the masses. This is forcing the more far-sighted "captains" of the capitalist ship of state to present certain measures taken by bourgeois governments as "planning." But a great gulf lies between these measures within the frame of private ownership, within the frame of the anarchic capitalist economic system, developing in the interests enriching the exploiting classes, and the system of planned, deliberate management of the social economy under socialism, developing in the interests of the entire society, in the interests of the toilers.

Rosenfeld tries by every means to defame Soviet planning. Describing in detail the "over-centralization," the "monstrous bureaucratism" of the USSR State Planning Commission, incredibly exaggerating defects which were revealed by the Soviet people, he declares them to be the basis of the entire Soviet system. "It seems to me," he writes, "that the problem should be enlarged in the following manner: should socialist planning be all-embracing? Is it possible to organize the national economy on a rational basis without being ossified, without bureaucratization, if planning goes beyond the limits of general directives, if it is extended beyond the limits of the principal sectors of national economic life and if it goes beyond the highly concentrated enterprises?"[‡]

Apparently the "socialist" Rosenfeld is not embarrassed at all by his picture of the division of the socialist national economy into "planned" and "not-planned" parts. He even considers such a system to be "the best" and the "more effective" from the point of view of "socialism."[*] It is clear from Rosenfeld's article that the purpose of such constructions is — to prove that small and medium-scale industry and trade not only should not be planned, but that it should not even be subjected to socialist reorganization. The necessity of preserving private capital in small and medium scale industry and trade he substantiates by saying: "their successes depend on personal qualities and individual initiative."[†] Naturally it comes as no surprise that O. Rosenfeld preserves an attachment to private capital and extols the initiative of private capital. But how is all this related to socialism?

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In recent years another tendency is more and more clearly manifested among some members of the French Socialist Party — namely to evaluate the successes of communist construction in the USSR more soberly than the reactionary leaders of that Party who occupy the "cold war" position and split the solidarity of the working class. The former President of the French Republic, Vincent Auriol, notes that "the Soviet people made up for two centuries of backwardness and transformed their country into the second industrial power in the word. The tempo of this growth undoubtedly is rapid... Even the United States was unable to achieve such successes in so short a time."[‡] And Vincent Auriol underlines the radical difference of the socialist system from the capitalist system. "In the Soviet Union," he writes, "everything is created at once according to the systematically thought-out and gradually realized plan, the financing of which is based on industrial and agricultural production. The revenues themselves from this constantly growing production are the basis of the state budget, the local budgets, and the family budgets, and these revenues permit the colossal development of this enormous country."[**]

Such utterances indicate that a part of the French socialists are striving to evaluate more objectively the reorganizing role of the new socialist production relations existing in the USSR.

The well-known member of the French Socialist Party, Jules Moch, in his book "The USSR With Open Eyes" writes: "What other country could boast of such successes?" Jules Moch, who visited the USSR several times, declares that "the Soviet method, whatever they say, reorganized the country as no other did."[††]

J. Moch discusses in detail the activities of the organs of the State Planning Commission and their role in the economic life of the USSR. "How was such a gigantic machine created?" he asks and replies: "This work was accomplished by the State Planning Commission which has behind its shoulders 30 years of work experience... The beginning was laid by the GOELRO, or the State Plan for the Electrification of Russia, announced by Lenin in 1920, i.e. before the end of the civil war." As Lenin very pointedly remarked "Communism is Soviet power plus electrification of the entire country." Lenin was "really an outstanding politician, who was able — never losing sight of the main task — to retreat temporarily when the situation required it and to renew the offensive later on."[‡‡] Moch gives numerous factual and statistical data on the successes of socialist planning in the USSR.

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[*] V. I. Lenin, "Works," Vol. 28, p. 29.

[†] "La Revue Socialiste," No. 105, 1957, p. 250.

[‡] "La Revue Socialiste," No. 105.

[*] Ibid., p. 253.

[†] Ibid., p. 252.

[‡] "France Soir," March 27, 1956.

[**] Ibid.

[††] Jules Moch, "URSS Les Yeux Ouverts," Paris, 1956, p. 18

[‡‡] Ibid., p. 185.

Knowing well the methods of some "critics" in the West, he gives them a rebuke in advance. "It is possible and even probable that in such a grandiose planning apparatus, which cannot be compared with any other, there will be certain defects. But they are not striking, and the experience of all these years shows that the USSR is advancing by huge steps. The Soviet Union already is the second industrial power in the world. This is an uncontestable fact. The Soviet Union is striving to excel the United States and is overtaking it at a rapid tempo."*

The book of Jules Moch differs from the writings of other leaders of the French Socialist Party. The author draws some correct conclusions and makes some well-aimed observations. For instance, while the pages of the French Socialist Party press are used to rehash inventions that the living standard of the Soviet people is supposedly declining and that it is supposedly lower than the level of 1928 or 1931, Jules Moch underlines that the material conditions of the Soviet people are markedly improving every year. He writes that the Soviet people are certain about tomorrow and are proud of their work and satisfied with the results of their labor.† At the Leningrad "Electrosila" plant the workers demonstrated to their French friends the production of gigantic generators. Jules Moch said, being an engineer himself, that he was quite amazed by a number of very high technical indicators.

J. Moch also described his impressions of visits to the Stalin textile combine in Tashkent, to an oil refinery at Baku, to the enormous metallurgical combine at Sumgait, etc. Everywhere he observed that the great socialist reorganization of the social order has also changed man himself.

In the review of J. Moch's book "The USSR With Open Eyes" F. Krusi wrote: "Moch put everything in its proper place." If one ignores the fact that the Soviet people have lived for more than 30 years without private property, under conditions of a planned economy, one cannot understand anything about the USSR.‡

But the book of J. Moch is not wholly objective when he starts to generalize. J. Moch, who observed the progress of agriculture in the USSR, who was astonished by the heroism of those who conqured the virgin soil, who became convinced that the battle of the virgin soil is won, still repeated, together with the majority of the socialist publicists, the fiction about a "crisis" in USSR agriculture. True, he makes a reservation, saying that "one has to point out without bias that these defects seem to be insignificant compared with the achievements."**

Certainly nothing can hide the fact that agriculture in the Soviet Union is on a sharp ascent. The victory of the collective order transformed the USSR into the largest mechanized agricultural country in the world. All the Soviet peasants joined the collective farms, the number of which is now about 80,000. 5,800 state farms were founded. Our agriculture has at its disposal a mighty material-technical base. As the result of socialist reorganization and a 50% decrease in the rural population during 40 years, the agricultural output for market increased several fold.

By 1957 the freshly upturned soil in the USSR amounted to 36 million hectares (including fallow lands), increasing harvest yields and the productivity of animal breeding. As a result, the harvest of grains reached a record level for the entire history of the country. During the last two to three years the production of all agricultural produce increased considerably. For instance, in 1956 the production of milk increased by 12,763,000 tons compared with 1953; production of meat by 991,000 tons; eggs by 3,471 million; potatoes by 23,445,000 tons, etc. Relying on the successes in the development of agriculture, the Communist Party supported the nation-wide campaign which was started in 1957 to overtake the US in the near future in the per capita production of meat, milk and butter. This objective is quite attainable. It is enough to point out that the tempo of development of some of the most important branches of agricultural production in the USSR are higher than in the US. For instance the gross production of milk increased in the USSR from 1950 to 1956 by 39%, while in the US only by 8%. At the same time the production of milk per capita increased in the USSR by 26%, while in the US it decreased by 2%. The tempo of the growth of meat production in the USSR also is higher than in the US. In the struggle for a further rise of socialist agriculture the Soviet people constantly uncover more and more new reserves and new possibilities. The agricultural workers of our country make their worthy contribution to the solution of the principal economic task of the USSR — to overtake and surpass economically the advanced capitalist countries.

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The diverse opinions of the leading members and publicists of the French Socialist Party on the problems of Soviet economics testify to a cleavage in the ranks of that party. True, we cannot speak as yet about cardinal differences of opinion, but the two different approaches to the economic development of our country reflect, though still to a minor degree, the existence of two different roads open before the socialist movement in France. One road is — spreading hatred toward the USSR, splitting the labor movement, weakening the forces of peace and supporting the "cold war." Along this road the imperialist ideologists and the socailist aid-de-camps at the headquarters of NATO are trying to push the masses. This is the road to the past. The other road is the struggle for the friendship of the French and Soviet peoples, for the unity of the socialist ranks, for rallying the forces of peace, for reducing international tension, for peaceful competition between capitalism and socialism. The Declaration and Manifesto of Peace that were passed at the conference of the Communist and Workers' Parties in Moscow in 1957 beckoned to this road. To this road belongs the future.

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* Ibid., p. 203.

† Ibid., p. 177.

‡ "La Revue Socialiste," No. 105, 1957, p. 137.

** Jules Moch, "URSS Les Yeux Ouverts," p. 268.

A. Chernov:

A Conference Concerning Questions of Economic Planning in the Economic Administrative Regions of the North Caucasus

The reorganization of the administration of industry and construction has influenced the character of scientific research conducted in institutes of economics and universities. At the present time, an important task lies before departments of economics: to provide active assistance to economic councils in solving vital problems of production. Above all, this concerns the actualization of current and long-range planning.

In December 1957, the Institute of Finance and Economics of Rostov-on-Don, in cooperation with the Rostov and Stavropol Economic Councils, as well as with local planning commissions, held a conference dedicated to problems of planning the economy under the conditions of the economic-administrative district. About 300 representatives from various industrial and agricultural enterprises, economic councils, and planning commissions of the Rostov district, the Krasnodar and Stavropol regions, Dagestan ASSR, Checheno-Ingush ASSR, Kabardino-Balkar ASSR, as well as representatives of the Academy of Science of the USSR, the State Planning Commission of the USSR and the SPC of the RSFSR, and of several economics institutes from Moscow, Minsk, Saratov, Kuibyshev, and Ordzhonikidze took part in the conference.

The head of the planning department of the Rostov Economic Council, A. Popov, made a report on current and long-range planning in his economic council. He said that the Rostov economic-administrative district held seventh place in the Russian Federation in terms of the scope of its industrial production. Many well-developed and complicated branches of economy are represented in the district, the principal among them are machine building and metallurgy. According to preliminary indications, the scope of the district's enterprises' gross production in 1965 will increase twofold over the 1957 level.

The speaker noted that planning in the economic council is more difficult than in the former ministries which ran only their own particular branch, yet, planning in the economic council has several important advantages. The most important of these is the proximity of the enterprises of the district. This permits the extensive participation of workers in the discussion of planning projects, and the correcting of particular problems operatively. This not only results in the improvement of the quality of projected plans, but, also, allows for the shortening of periods needed for their formulation. Thus, plans for 1958 were presented by the enterprises at much earlier dates than in previous years. This results in better preparation for the realization of industrial tasks and in the utilization of internal reserves.

Comrade Popov declared that the economic council daily controls the fulfillment of twenty-four-hour programs in the most important areas of production. If the twenty-four-hour graph is disrupted, then necessary measures for improvement of the work of delinquent factories and plants are taken. Operational management of enterprises and their proximity to administrative organs has shown favorable results as early as the second half of 1957 in the activity of the Rostselmash (Rostov agricultural machine works), the Taganrog combine, and watch factories and other plants. The economic council and its branches have offered them practical aid at the proper time with cooperative supply by redistributing supplies and improving material and technological equipment.

Comrade Popov devoted an important part of his report to the criticism of defects in working out the plan for 1958. He noted that the State Planning Commission of the RSFSR is unsatisfactorily planning inter-district relationship in the realm of the coordinated sale of equipment and machine parts, and in organizing specialized inter-district enterprises which manufacture instruments, adapters, punches, etc. The speaker stressed the absolute necessity of making up collated plans for developing the economy of the economic-administrative districts. All the present-day problems of comprehensive planning (the determination of agricultural, raw material stock available to industry; the concordance of construction plans with the production of building materials, particularly on the local level, etc.) must be reflected in such plans.

The report of the acting head of the technological department of the economic council, R. Kechek, was concerned with the important problem of planning the specialization and cooperation of industry under republic jurisdiction in the conditions of the Rostov economic-administrative district. The majority of this district's enterprises is specialized in the production of complex items (combines, electric locomotives, boilers, tractors, etc.). Industrial cooperation is not, however, sufficiently developed inside the district, nor on the inter-district level. The enterprises of the Rostov economic-administrative district use a great quantity of various materials which result in considerable waste. For example, the waste of metal alone in the form of shavings at these enterprises amounts to 80,000 tons per year, the waste of wood—to about 250,000 cubic meters. Prior to the creation of an economic council, not one of the ministries was interested in the problem of the rational utilization of this waste material. At the present time, the economic council plans to create specialized enterprises in which wood and metal waste will constitute the principal raw materials for the manufacturing of various products.

The planned specialization of industrial enterprises of the district must create the proper conditions for the organization of production processes based on the most advanced principle—achievement of large assembly line and mass production industry. In connection with this, the development of narrow specialization of enterprises is intended: Large factories must specialize in the output of definite products with the least possible nomenclature, while small enterprises must specialize in producing part component parts, instruments, etc. The specialization of each enterprise of the district was clearly defined when the project for a long-range plan of economic development was formulated for the years 1958-1965 in the economic council. Specialization will permit a better utilization of industrial forces and will increase the total output of production.

The problem of industrial cooperation within and among districts was the subject of a paper read by Professor M. Volobuev-Artemov. After describing several commonly recognized theories on this subject, the speaker made note of the important economic ties between the districts of the Northern Caucasus. These ties have existed a long time, and it would be unnecessary and harmful to upset them under present conditions. In order to determine the interconnected requirements which can be satisfied on the basis of inter-district cooperation, Professor Volobuev-Artemov suggested that periodic conferences of the economic councils of adjacent economic-administrative districts be held under the auspices of the RSFSR State Planning Commission.

The head of the department of comprehensive and long-term planning of the State Planning Commission of the Checheno-Ingush ASSR, S. Shiriaev, spoke on the subject of the problems of organizing the work of regional planning commissions and the SPCs of autonomous republics. He spoke of the practical aspect of this work and analyzed the paths for its future improvement. The planning of economic development is now, in large part, directly conducted on a local basis. This creates greater possibilities than ever for the related coordination of long-range and current plans for the development of the economy which is under republican and local jurisdiction in territories, regions, districts, and autonomous republics. A proper coordination between centralized government administration and the unfolding of the initiative of republican and local organs is extremely important under this system of planning. Comrade Shiriaev noted some serious defects in the activity of the State Planning Commission of the RSFSR (absence of theoretical guidance when long-range plans are drawn up locally, et al.). He expressed several wishes, the realization of which should eliminate errors when drawing up current and long-range plans for the development of regional economy.

The deputy director of research work of the Rostov-on-Don Institute of Economics and Finance, Professor A. Gozulov, read a report on the subject of "The Utilization of Virgin and Fallow Soils in the Eastern Districts of the USSR and the Overhauling of Production Specialization of Agriculture in the Northern Caucasus." He introduced and documented the problem of certain changes which must be made in the previously established specialization of agriculture in the districts of the Northern Caucasus. Such readjustment has been made possible due to the utilization of virgin and fallow lands in the East of the country; consequently, grain resources were greatly increased. The Northern Caucasian area, therefore, can, at the present time, develop meat and milk producing livestock-breeding at a faster rate, since even in the future it will be a region with a considerably developed grain economy. The structure of grain sowing is simultaneously changing, too: the importance of winter crops of wheat and maize increases; rice crops on irrigated lands are also grown.

The reformation of agricultural specialization in the Northern Caucasus will necessitate a preliminary distribution of crops and branches over small zones. This reform must be carried out gradually, as a function of the growth of common grain resources in the country, of the expansion of mechanization and the sources of production and labor resources.

All of the above-mentioned reports were heard at plenary sessions. Members of the Rostov Economic Council and of regional, district, and city planning commissions read reports at the sessions of the section on industry, construction, and comprehensive planning. For example, the head of the labor department of the Rostov Economic Council, P. Bubarev, read a paper on the ways to improve the organization of labor and wages at the enterprises of his economic council; the head of the industrial department of the Stavropol Regional Planning Commission, R. Gilman, told of his experience in drawing up proposals for the development of industry which is under republican jurisidiction in the region. P. Serpukhovitinov, head of the planning department of the Construction Administration of the Rostov Economic Council, reported on the advances in building industry planning in the economic-administrative district. Communications were heard on the following subjects: the simplification and perfection of accounting in connection with the reorganization of industrial administration; the organization of work of the Pyatigorsk City Planning Commission on long-range and current planning of locally subordinated economies, etc.

The agricultural section actively participated in the conference. Its representatives heard several reports. Among the subjects discussed were the distribution and specialization of agriculture in the Northern Caucasus (A. Bruk); the perspectives for the development of rice crops in the Rostov region and of vineyards in the Northern Caucasus (V. Ribchevsky and A. Lukianov). A. Ovchinikov and K. Nesterova devoted their talks to the subjects of the utilization of irrigated lands, and of the planning of agricultural production in suburban areas.

The representatives of industrial and agricultural enterprises of the Northern Caucasus actively participated in plenary and section meetings. The opinion that the administrative reform has had a favorable effect upon the activity of industrial and construction organizations was present in all of their declarations. Data on the results of work performed by various branches of industry and construction in the second half of 1957 also corroborated this opinion.

Many proposals were offered for the future perfection of production, its specialization, complex mechanization, and automation; proposals for the cooperation of enterprises and for the improvement of inter-district ties were also heard. The participants of the conference demanded that amenability for the fulfillment of orders for other economic districts at the proper time be heightened. They stressed the importance of work on such orders in running the economy according to plan, and its importance for specialization and cooperation.

In the decisions of the conference, the fact is stressed that the overhauling of industrial and construction administration has opened wide opportunities for the proper planning and specialization of industry in economic-administrative districts. It is necessary in this connection to eradicate very soon the defects found in the specialization and distribution of industry under local jurisidiction, whereas these functions were hitherto determined on the basis of requirements of separate districts, regions and autonomous republics. The conference recognized that it is expedient to conduct the distribution and specialization of several enterprises, as well as of large industrial artels, on the basis of another principle — the consumption of their production in groups of districts which are economically interrelated.

In order to ameliorate the financial planning of industry, the conference recommends discovering various internal material resources when the financial plans are drawn up; the members of enterprises and organizations must participate in this work. Many valuable suggestions were entered on the subject of the further perfection of the organization and planning of construction. The proposal to consider the finished production of the building industry as the main index when formulating plans deserves special notice. This proposal also states that a single scale of payment of labor must be established in different constructions, that the nomenclature of articles must be cut down in the plans of enterprises manufacturing building materials, and that the unification and strengthening of construction organization must be continued, etc.

A great deal of attention in the conference's decisions is devoted to the matter of simplifying and perfecting accounting in industry, particularly when it involves the mechanization of the latter.

The conference recognized the necessity of utilizing more effectively the land fund of the Northern Caucasian area and of putting irrigated lands into operation more rapidly; the principal bulk of these lands is situated close to cities and industrial centers. When this is done, it will be possible to obtain great quantities of rice, potatoes, and vegetables, and fodder resources will be substantially increased. The latter is important for a future increase of livestock breeding in the Northern Caucasus. The conference stressed the importance of reconstructing a fodder base for the entire Eastern part of the Northern Caucasus — an area which specializes in sheep breeding.

The conference also decided that it is expedient to create several large, specialized, suburban economies in the vicinity of the cities and industrial centers of the Northern Caucasus for the production of various agricultural products. In order to strengthen a suburban agricultural base, the unification of small, unprofitable economies is recommended; special agricultural groups or departments within the economic councils of the greater districts must be created in order to improve their organized administration.

The absolute necessity of formulating in detail a system of crop rotation in the Northern Caucasus — where agriculture is developed — is stressed in the decisions taken by the conference. It is stipulated that account should be made of the advances of mechanization and of potential labor resources when such a system is elaborated upon.

The realization of recommendations made at this conference will undoubtedly help the Rostov Economic Council, and others as well, in developing all branches of the economy in a more expedient manner. All this, in the final analysis, must have a beneficial effect upon the fulfillment of plans and upon the increase of the production of industrial and agricultural enterprises which are united by the economic councils of the Northern Caucasian area.

In estimating the results of the conference held in Rostov-on-Don, the work of the staff of the Rostov-on-Don Institute of Finance and Economics, in calling and conducting a conference devoted to the questions which the economic councils are facing today, must be highly praised.

M. Fedorovich:

The Application of Matrix Calculations in Planning the Work of a Plant

In November 1957, at the invitation of the administration of the Moscow Serge Ordzhonikidze Engineering-Economics Institute, Dr. Otto Pichler, head of the industrial planning department at the Walter Ulbricht Leina-Werke, a very large, government chemical enterprise of the German Democratic Republic, came to the capital.

During his stay in Moscow, Otto Pichler acquainted in detail the instructors and students of the Institute, as well as a group of industrial workers invited to the lectures and conferences, with the experiment of the Leina-Werke in the application of higher mathematics in factory planning. This problem is most vital at the present time. As it is well known, the technique of planning is a very difficult science. This limits, in many cases, the possibility of working out all the variants of planning decisions necessary to allow the selection of the best one. This difficulty leads to delays in meeting deadlines set for the formulation of the plan. The only decisive factor for the perfection of the technique of planning which is favorable is the mechanization of planning calculations through the introduction of fully automatic electronic computing machines. It is necessary to employ the principles of higher mathematics when working with these machines, for they create the possibility of computin tasks expressed in mathematical formulae.

Several scientific establishments in the USSR are workin on this problem. The departments of the Moscow Engineering-Economics Institute are among these. Consequently, the information concerning the Leina-Werke experiment was particularly interesting to the staff of the Institute. The Leina-Werke combine consists of many shops which manufacture a large assortment of chemical products. Moreover, the majority of the manufacturing shops of the combine are closely inter-connected technologically on the basis of the complex processing of raw materials and reprocessing of waste. A substantial part of the products put out by the combine is merchandise which is sold outside, while another part is used for further processing at the enterprise itself. At the Leina-Werke, there is an electro-central station which supplies electricity and steam to the plant. All these circumstances make the planning of the industrial economic activity of this enterprise quite complicated and difficult.

Seeking ways to overcome difficulties in planning, Dr. Otto Pichler has turned to the science of higher mathematics. In 1953, he began to apply this science in production planning as an auxiliary method. On the basis of matrix calculus, he elaborated a certain method for the technique of factory planning which may be arbitrarily called the matrix method of planning. At present, this method is used in one other industrial enterprise of the GDR. In 1955, a member of the State Planning Commission of the GDR, M. Notterodt, wrote an article in which he proposed that matrix calculus be used in national economic planning, particularly in the determination of material balances.

Presently, matrix calculus is quite commonly employed in many aspects of the exact sciences (theoretical mechanics, physics, electro-technics, etc.). As the experiment of the Leina-Werke has shown, this type of calculus can be used successfully in planning and in economics in general. The utilization of matrix calculus is based principally on the construction of a pattern (structural matrix) by means of which the causality of production phenomena can be expressed numerically; for instance, the relationship between the scope of the production of each of the shops which enters into the whole of the industrial enterprise and which participates in the preparation of the final production, and its entire scope.

When such a structural matrix has been found, it is possible to calculate almost mechanically, without any particular mental effort, and with great accuracy, any number of variants of production programs for each of the enterprise's shops, separately, depending upon changes in the scope of final production. The same method permits the calculation of the requirement by the industry of each kind of raw material, the planned cost of each product, etc. The utilization of this method gives results in that it is then possible to calculate very rapidly, and without difficulty, any number of variants of the planned cost of production which correspond to different scopes of production.

At the present time in the USSR, the planned cost of production is figured out only in respect to the scope of production set in the industrial program. Therefore, the lowering of the cost of production by the enterprise as a result of overfulfilling the plan and, consequently, the lowering of the extent of permanent expenses per unit of production, are considered achievements of the enterprise. Once the scope of production has been achieved, such a decrease may be considerable. Therefore, it is very important, in due time, to turn the attention of the administration and staff of the enterprise to the inter-relation of the cost of production and the growth of its scope. With the use of the structural matrix created for the yearly plan, it is very easy to calculate quarterly plans of production, provided, of course, that all the initial data of the plan, i.e., the norms of expenditures, remain unchanged in the course of the year.

This method also offers great possibilities for discovering mistakes in production calculations. A reverse matrix is used for control in such a case. The effect of the use of the matrix method immeasurably grows with the introduction of electronic computing machines. The economic efficacy of electronic computors in use for factory planning, however, must first be thoroughly checked. Probably the most efficient solution will be to create regional machine computing stations equipped with electronic computors which will serve several neighboring enterprises. Modern methods of running industry and construction make this quite feasible. At the Leina-Werke, all planning calculations are made with ordinary calculating machines which have special attachments for matrix calculus.

From the communication of Otto Pichler, it is clear that the use of matrix calculus has given positive results, although it is still in a primary phase of development and does not have a complex character, nor does it include such an important part of factory planning as labor and wages. The information received may be a point of departure for scientific research and necessary experimentation in practice. In the current year, the departments of Economics and of Chemical Industry Organization of the Moscow Engineering-Economics Institute will conduct research on this question and matrix calculus will be introduced in the higher mathematics course. The application of this method of computation will also be reflected in course projects and assignments on the subject of industrial practice.

L. Ivanov:

Concrete Economic Problems in the Work of a Research Institute Specializing in a Branch of the Economy

The main goal of the Central Scientific Research Institute of the Economics and Exploitation of Water Transport (TsINIIEVT) is the study of the problem of the most effective organization of passenger and freight conveyance on water routes. The fullest possible realization of the advantages of water transport, and the consequent saving of considerable material values by the national economy was the goal at which the research conducted by the Institute for the past two or three years was directed. The staff of the Institute also studied the problem of improving the economic indexes of water transport enterprises.

The Institute paid special attention to the problem of the geographical distribution of transport routes of principal freights, and to the problem of developing transport routes within mixed railroad-water communication. This work is performed under the general supervision of the Institute of Complex Transport Problems of the Academy of Sciences of the USSR. In the course of the study, the state of the conveyance of mass freights — lumber, coal, grain, and metal — over the principal water basins of the USSR was analyzed. The factors which influence the distribution of freight routes between railroad and water transport have also been studied. On the basis of long-range data on the levels of production and consumption, the ties between districts which tend toward the Kama, Don, Azov-Black Sea and Caspian water basins have been determined. This knowledge has permitted the formulation of a scheme for the organization of normal freight routes in mixed transport; the formulated scheme permits the transportation of mass freight at the least possible expense on the part of the national economy. Moreover, economic indexes for each type of transport have been determined in terms of collateable data. The system of such indexes and the method of their determination have been described in a published work entitled "Methods of Determining the Economic Effectiveness of Various Types of Transport."

An increase in the freight turnover of water transport (especially of river transport) the result of which would be a fuller satisfaction of the national economy's needs for transportation, depends mainly on the development and perfection of mixed railroad and water transport routes. The rational cooperation of various types of transport insures the saving of considerable material resources. The possibility of achieving such transportation on a large scale is one of the most important advantages of socialist over capitalist transport.

Many economic problems of great practical consequence had to be solved in order to accelerate the circulation of the working capital of steamship lines and ports; many such problems had to be solved in order to improve the planning of their income and in order to determine tariffs for the transportation of freight. The Institute has worked out a method for the standardization of working capital in river steamship lines, ports, and wharves. This method is at the foundation of "The Standardization of Working Capital in River Steamship Lines, Ports and on Wharves." This work, prepared by the TsINIIEVT, explains the method which is destined for practical use in river fleet enterprises.

The staff of the Institute has proposed a method of grounding the scope of the income of river lines and ports which would allow the increase of the organizing role of financial planning. This method would also result in the discovery of factors which influence the size of income on the basis of types of tariffs for the nature and category of freight. Practical methods are determined for the planning of income from the transportation of freight and passengers, from loading and unloading operations, from other work and services to which the clientele of the river fleet is entitled, and from intra-economic operations.

The following works by the Institute were devoted to the problem of determining the cost of freight transportation; "Methods of Determining Costs of River Transportation on the Basis of the Nature of Freight;" "Cost of Sea Transport for Different Cargoes;" "A Method to Determine Tariffs for Sea Transport;" "The Method for the Determination of Norms for Amortization Deductions on Vessels of the River Fleet."

It was decided that a large group of captains, mechanics, and members of production should be called upon to participate in research on the subject of "the experience of crews in combining professions while working." Their participation in gathering materials and in setting up and timing experiments helped to study more fully the conditions of the work of vessel crews while holding more than one employment. Their aid was important in arriving at concrete proposals for the further development of this advanced method of organizing the labor of the crew members of river transport ships.

Studies in the realm of standardizing labor for loading and unloading in sea and river ports are generalized in a project of the Institute for single complex norms of work at such tasks in river ports. The project is based upon a large amount of data received in the most important ports of the country: Leningrad, Moscow-South, Kiev, Dnepropetrovsk, Gorki, etc.

The analysis of the existing system of wages of the staff of sea transport vessels and recommendations for its improvement are refuted in the study "A Proposal for the Improving of the System of Payment of the Labor of Transport Vessel Crews of the USSR Ministry of the Seagoing Fleet." The purpose of this work is to eradicate serious defects in the organization of wages.

The economic foundations of the effectiveness of utilizing water transport and the economic characteristics of various types of vessels make up an important part of the Institute's work. The following works on this subject may be singled out: "The Determination of the Principal Operational-Economic Requirements Which Must Be Placed upon New Types of River Transport Vessels;" "The Basis of a System of Types of Seagoing Vessels;" "The Technical and Economic Characterization of Vessels for Ferry Service in Reservoirs;" "The Basis for More Economical Schemes for the Complex Mechanization of Freight Loading in River Ports;" "The Technical and Economic Basis for the Distribution of Freight Routes According to Types of Fleet and Technique of Navigation;" "The Economic Justification for Using Vessels with Underwater Propellers in Organizing Rapid Passenger Lines."

Many problems related to the further perfection of river transport are being investigated by the Institute: the increase of the speed rate of self-propelled freight vessels and of towed barges; the increase of their tonnage and power; sufficient increase of the productivity of labor to allow the lowering of expenses for conveyance; widespread introduction of the progressive method of navigation — the pushing of vessels, introduction of devices for long haul navigation, automatic signals, and so forth.

Research has shown that the introduction of internal combustion engines with gas turbines may be carried out without having recourse to steam propelled vessels and wooden barges. This will allow the increase of engine power by 40-60% during the period 1959-1969 and will lower the over-all weight characteristics. It is also certain that for the lowering of the cost of loading and unloading, the norms of these operations must be set at a level of 800-1,700 tons per-hour. This may be achieved by introducing open river vessels and self-unloading barges with high tonnage.

V. Zhmuida:

First Results of the Work of the All-Union Research Institute of Agricultura Economics

The All-Union Scientific Research Institute of Agricultural Economics (VNIESK) has been in existence for approximately two years. At the time of the organization of the Institute, its branches in Saratov, Voronezh, Rostov-on-Do Novosibirsk and Alma-Ata were also created.

The principal aim of the Institute is to direct the efforts of agrarian economists toward the investigation and genera ization of problems related to the proposition of raising the labor productivity of agricultural workers, increasing the output of all types of agricultural production, and lowering the cost of production.

The principal form of the Institute's scientific activity consists of economic research conducted directly on the sites of production. Forty-three bases were created in kolkhozs, sovkhozs, and MTS for this purpose. Furthermore, the Novo-Alexandrovsk experimental station at the Kolkhoz "Russia" of the Stavropol region was placed under the Institute's jurisdiction. The principal concern of these bases is the study on location and introduction of scientific achievements and advanced experiment. With the consent of the directors of the enterprises, experiments in scientif ic production are performed at these bases, expenses for production are also studied here, measures for reducing the cost of production are formulated and put into practice. The Institute conducts scientific research and experimenta tion in 170 enterprises in addition to the bases.

The method of the mass polling of agricultural and scientific workers is employed. Field trips are organized in which the graduate students of the Institute and the upper classmen of the Timiryazev Agricultural Academy participate. A network of unattached scientific correspondents (involving more than 600 people) offers great assistance in the work carried out by the Institute; these correspondents are administrators and specialists in agricultural enterprises and staff members of scientific research institutes and of Party and Soviet agricultural organs.

The staff of the VNIESK concentrates on the solution of two groups of problems: 1.) The rational distribution and specialization of agriculture in the USSR, the economic grounding of systems for the operation of agriculture, the improvement of systems of price formation, and realizatio of agricultural products; 2.) the increase of output, the growth of the productivity of labor and of the profitableness of kolkhozs, MTS, and sovkhozs.

A program-method for the division into districts of agriculture in the USSR as a whole and on the basis of various branches, regions, and republics was formulated, based on the principles of "The Rational Distribution and Specialization of Agriculture." At the present time, research on the subject of intra-regional division into districts is conducted in 15 regions and krais. On the basis of material gathered from 5,000 kolkhozs and 200 sovkhozs in different zones of the country, the Institute is perfecting the production typification of farms — i.e., the selection of typical kolkhozs and sovkhozs which may be used as models for the formulation of rational systems of conducting agriculture. The conclusions drawn from this project were brought forth at the All-Union Conference on the distribution and specialization of agriculture which was called in April, 1957, by the department of economics of the Lenin All-Union Academy of Agricultural Sciences (VASKNIL) and the Institute. Similar research was conducted in all of the branches of the Institute, and the results are published in a special collection.

A long-range plan for the Kolkhoz "Russia" of the Stavropol region was formulated in 1956, in cooperation with scientists of other institutes. This plan shows the manner in which the economic life of a kolkhoz should develop if full account is taken of the natural and economic conditions of the given region. The method used in drawing up this plan may also be used by the kolkhozs of other agricultural zones.

The Institute is now determining the measures necessary for the development, rational distribution, and specialization of agriculture in the Novosibirsk region. The objective in this case is to guarantee a maximum quantity of agricultural production at the expense of the least possible outlay of labor and means per unit of production. A special session of the VASKNIL devoted to this problem is planned for the Spring of 1958 in Novosibirsk.

The staff of the Institute studies the economic evaluation of lands and makes recommendations for the future intensification of land fund utilization.

The formulation of a system for the economic evaluation of lands and the creation of a preliminary scale for the appraisal of soils, which accounts for the natural and economic conditions of various zones, make up one of the primary goals of the Institute. The prerevolutionary Russian experience and the modern manner of keeping cadastral lands in foreign countries must be considered when such methods are worked out. Simultaneously, the data compiled by more than 1,000 government testing stations are studied.

Research on the economic foundation of systems of agriculture and livestock raising and of the agro-zootechnic measures taken in several kolkhozs and sovkhozs in various parts of the country is also conducted by the Institute. The economic effectiveness of the principal elements of the system of husbandry was studied in the kolkhozs of the forest-steppe zone of the Ukrainian SSR. The main purpose of such studies is the analysis of various techniques, the generalization and diffusion of advanced experimentation in the productive activity of kolkhozs and sovkhozs related to the fulfillment of the decision to equal the production of meat, milk, and butter per capita in the USA within a few years.

Furthermore, a large group of scientists from the Institute and its branches takes an active part in the activity of zonal commissions for the formulation of rational systems of running agriculture in the Central Nonchernozem zone, the Far Eastern, Moscow and Kaluga regions, the Chuvash ASSR, the Nizhni Don, the Krasnodar region, the Povolgie, the Central-Chernozem zone and in Western Siberia. The Institute has prepared the principal method theories for the resolution of problems of the economic grounding of systems of conducting agriculture on the basis of national zones. They were discussed in November, 1957 at a joint session of the economics department of VASKNIL and the Scientific Council of VNIESK.

An important place in the scientific work of the Institute is held by the problems of raising the profitableness and strengthening the financial economy in kolkhozs on the basis of the introduction of self-support. The Institute directly participated in drawing up the long-range plans in the kolkhozs "Rassvet," Kirov district, Mogilev region; "Kirov" of the Peremishl district, Kaluga region; "Red October" of the Kumensk district, Kirov region, et al.

New types of long-range planning for a kolkhoz and the methodic steps by which such planning was achieved, its profitableness as a whole, as well as of its branches, determined according to accounting and planning exponents, have been formulated. In doing this, such indexes as the economic evaluation of crops and economic branches, the level of labor productivity, the output of production per unit of land area, and the level of the cost of production methods for the introduction of self-support into the economy of kolkhozs were verified in practice.

The investigation of the Institute on the change to self-support was discussed in the brochure "Self-Support in the Kolkhoz," published and put into mass circulation, and was treated especially in the Permanent Agricultural Fair exhibits.

The introduction of the principle of self-support into kolkhoz economy results in a better organization of labor, a fuller utilization of internal reserves, and a decrease in the costs of agricultural production. Thus, in the Kolkhoz "Lenin" of the Korenevsk district, Krasnodar region (a VNIESK center) self-support was introduced in complex brigades as early as in 1956. The cost of producing one centner of wheat went down in 1957, in comparison with 1956, from 27 to 21 rubles; one centner of pork, from 832 to 578 rubles. Money and labor outlay per centner of milk was cut almost in half. The total number of workday units was cut down by 124,000 in comparison with 1956, by means of lowering the cost of production in the kolkhoz. Because of the experiment at the Lenin Kolkhoz, it was decided to introduce self-support into all complex tractor and field and field working brigades of the Korenev district.

In the process of studying problems of the organization, standardization, and payment of labor, the Institute has gathered and tabulated materials concerning kolkhozs in various zones of the country. It was shown, moreover, that norms of output in kolkhozs are often established without regard for the established level of labor productivity and without the application of methods of technical standardization. In this connection, a goal was set to formulate a simple and easily available method of technical standardization. A project for such a simplified method is being tested today in production conditions at several kolkhozs. The first results of the experiment have shown that the method of standardizing labor according to enlarged indexes permits the determination of scientifically founded norms of output with desired accuracy. The Institute is concerned with studying the question of payment of labor in kolkhozs.

Work on the introduction of elements of self-support into several machine-tractor stations in various parts of the country is being conducted. Assistance is provided to ten MTS in methods and scientific organization for the introduction of self-support. The administrative organs of several regions recommend the utilization in MTS of the documentation and methodic information available for the change to self-support of tractor brigades, repair shops and other subdivisions of an MTS.

The Kurgan Tyubinsk and Zagorsk MTS of the Tadzhik SSR are the first in the country to have been entirely converted to self-support. The experience of these stations is under the scientific observation of the Institute. One of the subjects of study at the Institute is devoted to the improvement of MTS-kolkhoz relations. In eight MTS of various zones, practical experiments were set up, the aim of which is to study and judge such new forms of relations between kolkhozs and MTS as the institution of single administration over kolkhozs and MTS, organization of united tractor-kolkhoz brigades, the grant of the right of directing the work of tractor brigades to the kolkhoz administration, and the placement of MTS techniques under kolkhoz jurisdiction for the entire agricultural season.

The Institute has conducted an investigation of the economic basis of systems of machines in the agricultural production of separate zones. Methodic indicators have been worked out for the economic appraisal of new agricultural machines at the time they are tried out. The Institute published a work on the economic effectiveness of the various methods of gathering grain crops.

A project for a method of classifying indexes of the productivity of labor in sovkhozs of various zones was formulated during the study of problems of increasing the output of production and raising the productivity of labor at these enterprises. Materials for the study of the economic effectiveness of new sovkhozs on virgin and fallow lands were brought forth by the Institute at a conference on the economics and organization of sovkhoz production December 1957, in Alma-Ata.

The All-Union Scientific Research Institute of Agricultural Economics has worked on the problems of accounting and lowering the cost of production of kolkhozs. With assistance from the staff of the Institute, the actual and planned cost was compiled in several kolkhozs and the results were discussed at district economic conferences.

The Institute devotes its work to providing practical and scientific-methodic help to Party, Soviet, and agricultural organs, kolkhozs, MTS, and sovkhozs for the propagation and introduction into agricultural production of the advances of science.

The Institute systematically studies problems of economics and organization of agriculture in foreign countries. The VNIESK is engaged in scientific cooperation with institutes of agricultural economics in the people's democracies: Bulgaria, Hungary, GDR, and Czechoslovakia. Exchange of literature on the economics of agriculture with several foreign countries has also been granted.

As a result of the study and generalization of materials on the economics and statistics of agriculture in bourgeois countries, a statistical work has been prepared for publication: "Agriculture in Capitalist Countries." A work entitled "Some Data on the Importance of Corn and on Labor Spent Producing It in the USA" is also about to be published.

A New Economic Journal in Georgia

The publication of a new journal of economics, "Sakartvelos Ekonomisti" ("The Georgian Economist"), has just begun in Tbilisi. It is an organ of the State Planning Commission, the National Economic Council and the Institute of Economics, Academy of Sciences of the Georgian SSR. The scope of the publication is of six quires. The following articles and notices are included in the first issue for 1958: "The 18th Congress of the Georgian Communist Party" (the lead article); "The Plan for the Development of the National Economy of Soviet Georgia for 1958" (its author i the Vice-President of the State Planning Commission of the Georgian SSR, K. Tsimakuridze); "The Tasks of the Government Budget of the Georgian SSR in 1958" (the autho is the Minister of Finance of the Georgian SSR, B. Chkheid "Toward a Vigorous Heightening of Industry in the Georgia Economic-Administrative District" (by the President of the Georgian Economic Council, G. Chogovadze); "Some Particular Aspects of Kolkhoz Labor" (by the head of the Department of Industrial Economics of the Institute of Economics, Academy of Sciences of the Georgian SSR, I. Badzhadze); the review "The Question of Gasification" (by the head of the Gasification Department of Tbilisi).

Under the heading of "The Economics of Enterprises," there are two articles: one written jointly by the Director of the Tbilisi S. M. Kirov Machine-Tool Building Plant, I. Kizivadze and by the scientist-member of the Institute of Economics, Academy of Sciences of the Georgian SSR, S. Margvelashvili — "Questions of Technological Progress ar Increasing the Productivity of Labor at the S. M. Kirov Ma chine-Tool Building Plant;" and another written jointly by President of the Stalin Kolkhoz in the town of Khutsubani, Kabuleti district, S. Tsetskhladze, and by the economist-member of the Institute of Economics of the AS of the Georgian SSR, D. Diasamidze — "Let Us Make Profitable All the Branches of Social Economy in the Kolkhoz."

In the section devoted to news items, an account of the regional conference of the Institutes of Economics of the Transcaucasian Republics is published. In the "Criticism and Bibliography" department, there are reviews of a statistical work on the development of economics and culture the Georgian SSR, and of the book by L. Nelson, "The Life of American Farmers." Furthermore, notices entitled "Th Aims of the Journal 'Sakartvelos Ekonomisti'" and "The Georgian Economic Terminology" are found in the journal among other materials.

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